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AIRCRAFT MOTION AND PASSENGER COMFORT RESPONSE DATA FROM TIFS RIDE-QUALITY FLIGHT EXPERIMENTS

By

W. Elliott Schoonover, Jr.

(NASA-TM-X-73944) AIRCRAFT MOTION AND PASSENGER COMFORT RESPONSE DATA FROM TIFS RIDE-QUALITY FLIGHT EXPERIMENTS (NASA) 139 p HC $6.00 CSCL 01A

N76-30160

Unclas G3/02 50427

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National Aeronautics and Space Administration

Langley Research Center
Hampton, Virginia 23665

1. Report No.	2. Government Accession No.	3. Recipient's Catalog No.
TM X-73944		

4. Title and Subtitle	5. Report Date
Aircraft Motion and Passenger Comfort Response Data From TIFS Ride-Quality Flight Experiments	August 1976
	6. Performing Organization Code
7. Author(s)	8. Performing Organization Report No.
W. Elliott Schoonover, Jr.	
9. Performing Organization Name and Address	10. Work Unit No.
NASA Langley Research Center Hampton, Virginia 23665	513-50-50-01
	11. Contract or Grant No.
	13. Type of Report and Period Covered
12. Sponsoring Agency Name and Address	NASA Technical Memorandum
National Aeronautics and Space Administration Washington, D. C. 20546	14. Sponsoring Agency Code

15. Supplementary Notes

This is the final release of special information not suitable for formal publication.

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17. Key Words (Suggested by Author(s))	18. Distribution Statement
Comfort Response Ride Quality Aircraft Maneuver Comfort In-flight Simulator Responses	Unclassified-unlimited Subject Category 02

19. Security Classif. (of this report)	20. Security Classif. (of this page)	21. No. of Pages	22. Price*
Unclassified	Unclassified	134	$5.75

* For sale by the National Technical Information Service, Springfield, Virginia 22161

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SUMMARY

This report documents the aircraft motion data and passenger comfort response data obtained during ride-quality flight experiments using the USAF Total In-Flight Simulator (TIFS). During each of 40 test flights, 10 passenger subjects individually assessed the ride comfort of various types of aircraft motions. The 115 individuals who served as passenger subjects were selected to be representative of air travelers in general. Aircraft motions tested consisted of both random and sinusoidal oscillations in various combinations of five degrees of freedom (transverse, normal, roll, pitch, and yaw), as well as of terminal-area flight maneuvers. The data are sufficiently detailed to allow analysis of passenger reactions to flight environments, evaluation of the use of a portable environment measuring/recording system and comparison of the in-flight simulator responses with input commands.

INTRODUCTION

This report documents the data obtained during ride-quality flight experiments conducted at the NASA Langley Research Center during August and September 1974, using the USAF Total In-Flight Simulator (TIFS). Both

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aircraft motion data and passenger comfort response data are presented. These data have been reported in part by the experiments' principal investigaors, as described below; the purpose of this report is to make all data readily available for further analysis by others and for incorporation into a larger ride technology data base.

The TIFS ride-quality flight experiments were conducted as part of an ongoing NASA ride-technology research program and addressed technology needs in four areas:

Ground-Based Simulator Validation - determination whether passenger comfort responses are the same in ground-based simulation of flight environments as in the flight environments themselves. Test motions consisted of random and sinusoidal oscillations in four degrees of freedom (transverse, normal, roll and yaw).

Low-Frequency Rolling Motion - investigation of passenger comfort during low-frequency, large-amplitude rolling motions known to cause motion sickness in some individuals.

Terminal-Area Flight Maneuvers - investigation of passenger comfort responses to unusual flight maneuvers being considered for reducing noise, fuel usage, and air traffic congestion in terminal areas.

Passenger Demographics - Determination of effects of passenger demography on comfort responses to a flight environment. Test motions consisted of random oscillations in five degrees of freedom (transverse, normal, roll, pitch and yaw).

The ground-based simulator validation and low-frequency rolling motion investigations were conducted by the University of Virginia (U. Va.).

The simulator validation effort included ground simulator experiments as well as the flight experiments reported herein; results of this effort have not yet been documented. Results of the low-frequency rolling motion investigation (without analysis or discussion) are presented in reference 1. Description and results of the terminal-area flight maneuver experiments are presented in reference 2. The passenger demographics experiments were conducted by Hampton Institute (H. I.). Description and results of these flight experiments plus those of ground-based simulator experiments are presented in reference 3. Because of the extensive description and discussion of the ride-technology background and specific test purposes, techniques, and procedures in the above referenced reports, only brief discussions of the test vehicle and general test procedure are presented herein.

SYMBOLS

g	acceleration due to gravity (nominally 9.81 m/sec^2)
h	aircraft altitude, m
$\dot{h}$	aircraft rate of climb, m/sec
I	aircraft motion commanded by maneuver drive tape
n_x	longitudinal acceleration of aircraft center of gravity, g-units ($+n_x$ pushes passenger into seat back)
n_y	lateral acceleration of aircraft center of gravity, g-units ($+n_y$ pushes passenger to left of seat)
n_z	normal acceleration of aircraft center of gravity, g-units ($+n_z$ lifts passenger out of seat bottom)
O_T	aircraft motion as measured and recorded by TIFS data system
O_P	aircraft motion as measured and recorded by portable instrumentation

p	aircraft roll rate, deg/sec (+p moves right wing downward)
q	aircraft pitch rate, deg/sec (+q moves aircraft nose upward)
r	aircraft yaw rate, deg/sec (+r moves aircraft nose to right)
(R)	random oscillatory motion
rms	root-mean-square
(S)	sinusoidal motion
v_i	aircraft indicated airspeed, kt.
γ	aircraft flight path angle, deg ($+\gamma$ for aircraft climbing)
θ	aircraft pitch angle, deg ($+\theta$ aircraft nose up)
ϕ	aircraft roll angle, deg ($+\phi$ is right wing down)
$\lambda( )$	mean absolute value of ( )
$\mu( )$	mean value of ( )
$\xi( )$	root-mean-square value of ( )
$\sigma( )$	standard deviation of ( )
$\hat{}( )$	maximum deviation (+ or -) from zero of ( )

TEST VEHICLE

The TIFS (fig. 1) is a C131-H transport (similar to a Convair-580 commercial transport) modified into a variable-stability research aircraft (ref. 4). Figure 2 illustrates the distinctive features of the TIFS aircraft as modified for ride-quality flight testing. Special motion control surfaces provide independent control of the forces along and moments about all three motion axes. Included are aerodynamic surfaces mounted vertically above and below each wing to provide side-force variation, aileron-type flaps immediately outboard of the engines to provide direct

lift control, and servo-operated throttles to provide longitudinal force variation. Standard ailerons, elevator, and rudder produce rolling, pitching, and yawing moments, respectively. Motion command signals from magnetic tape were combined in the analog computer, with appropriate filtering and shaping, to generate commands to the flight control surfaces necessary to produce the desired aircraft motions.

The aircraft forward cabin section between the cockpit and computer (fig. 3(a)) was outfitted with wood paneling, curtains, and a carpet to create an airline-type environment. Five pairs of standard Convair seats (fig. 3(b)) were provided for the 10 test subjects. Each passenger seat was provided with a reading light, an adjustable outlet of conditioned air, a seat pocket with airsickness bag, and an emergency evacuation instruction card. A restroom, equipped with a marine-type toilet, was provided adjacent to the test subject area. The TIFS hydraulic console area was soundproofed and trimmed with wood paneling. All but one pair of test subject seats were adjacent to a window. For the flight-test director, an additional double seat was provided immediately behind the test subjects, together with voice communications to the pilots and test engineer and a public address system for instructing the passenger subjects during flight. A more detailed description of the TIFS as configured for these experiments is given in reference 5.

FLIGHT TEST PROCEDURE

Approximately 1 hour prior to a given test flight, 10 of the test subjects were assembled and briefed on the purposes of the TIFS Ride-

Quality Program in general and of the upcoming flight in particular. The subjects were informed of the types and magnitudes of motion to be experienced and of the ability of any subject at any time to terminate the input motion by a simple hand signal. After all questions were answered, each subject signed the manifest, and boarded the aircraft.

Once all passenger subjects were aboard and seated with seat belts secured, the TIFS aircraft took off and during about 15 minutes climbed to the appropriate test area, altitude, and heading. The aircraft was then trimmed in straight and level flight and the variable-stability system engaged. For the next 30 to 40 minutes, the aircraft was piloted by the tape recorder, with the exception of occasional pitch and roll trim changes by the copilot to keep the aircraft within safe test airspace. Figure 4 indicates the ground path followed during flights involving oscillatory motions and the general area in which flight maneuver experiments were performed. As the various test motions were experienced in the aircraft, the begining and the end of each evaluation interval (typically 30 sec) were announced over the aircraft's public address system by the test director. At the end of each evaluation interval, each passenger subject recorded on a rating sheet his estimate of his own total comfort. Upon completion of the entire set of motion test segments, the tape recorder was stopped, the variable-stability system disengaged, and the aircraft returned to the Langley Research Center and landed. Upon landing, the passengers deplaned and, after a short debriefing, were dismissed.

PRESENTATION OF EXPERIMENTAL DATA

The order of data presentation is summarized in table 1. The data are divided (vertically in the table) into three major groupings according to principal investigator (University of Virginia, Hampton Institute, and NASA). The first data table within each such major grouping (tables 3, 22, and 37) presents the age, sex, and previous flight experience of the passenger subjects participating in that grouping of experiments. The remaining tables within each major grouping present the aircraft motion data and passenger ride comfort ratings obtained during each flight in that group of experiments. Also indicated in table 1 are the type of aircraft motions (random, sinusoidal, or maneuver) and motion degrees-of-freedom used in each test flight.

Of the 115 individual passenger subjects, 22 participated in more than one major group of experiments. This commonality of passenger subjects is summarized in table 2. For example, University-of-Virginia subject 19 aboard U. Va. flights 15-18 is the same individual as Hampton-Institute subject 62 aboard H. I. flights 9 and 10, and NASA subject 4 aboard NASA flights 2, 3, and 5-7.

University of Virginia Experiments

The University of Virginia conducted 18 flight experiments (table 1), obtaining passenger comfort responses to both random and sinusoidal oscillatory motions in various combinations of four degrees of freedom (transverse, normal, roll, and yaw). The 26 passenger subjects who participated in these experiments (table 3) consisted of 13 males and

13 females. Their ages ranged from 18 to 38 (median = 23). Their previous flight experience ranged from none (subjects 25 and 31) to that of seasoned pilots (subject 3 and 12).

In tables 4 through 21, part (a) defines the aircraft motions presented during each of the 18 U. Va. test flights in terms of root-mean-square (rms) linear acceleration and angular rate values while part (b) presents the corresponding comfort ratings. Table 7(a), for example, presents the rms random roll rates (p(R)) and random yaw rates (r(R)) during each of the 20 test segments of U. Va. flight 4. For both variables and for each test segment , three rms values are given. The first value, labeled I, is the input motion or motion commanded by the TIFS motion command tape. The second value, O_T, is the resulting aircraft motion as determined by the TIFS motion sensing and recording equipment. The third value O_P is the aircraft motion as measured and recorded by portable carry-on instrumentation. In segment 4 of U. Va. flight 4, for example, the tape-commanded rms yaw rate was 0.45 deg/sec; the TIFS measuring/recording equipment indicated a resulting aircraft rms yaw rate of 0.42 deg/sec; the portable instrumentation indicated a resulting aircraft rms yaw rate of 0.52 deg/sec. A blank space in a column labeled O_T indicates that data were lost due to data reduction difficulties.

Tables 4 through 21 provide data for three types of analysis. The first type of analysis relates the passenger comfort responses to the measured motion environment (for example, ref. 2). The second type of analysis relates the tape-commanded TIFS motions to the resulting aircraft

motion, thus establishing a command/response function (for example, ref. 5). The third type of analysis determines the consistency between motion measurement/recording by hard-wired aircraft instrumentation and motion measurement/recording by carry-on portable instrumentation. A brief examination of the data using the last type of analysis indicated that for normal and transverse linear accelerations and for roll rates, agreement between the two measuring/recording systems was excellent (rms differences less than 5 percent of the mean values, and correlation coefficients exceeding 0.99). For yaw rates, however, agreement was not as good (rms differences $\approx$ 22 percent of the mean value, correlation $\approx$ 0.79).

Hampton Institute Experiments

Hampton Institute conducted 14 flight experiments (table 1), and obtained passenger responses to random oscillatory motions in five degrees of freedom (transverse, normal, roll, pitch, and yaw). The 82 passenger subjects who participated in these experiments (table 22) consisted of 40 males and 42 females. Their ages ranged from 18 to 66 (median = 31). Their previous flight experience ranged from none (10 subjects) to that of the seasoned air traveler (10 subjects with 50+ previous flights).

Part (a) of tables 23 through 36 defines the aircraft motions presented during each of the 14 H. I. test flights in terms of rms linear acceleration and angular rate values. As with the U. Va. experiments data, both the command aircraft motion values (columns labeled I and the aircraft motion response values are presented. However, only the aircraft motion responses, as measured and recorded by the TIFS system (columns labeled O_T), are

presented, as no portable instrumentation was used during these flights. Part (b) of tables 23 through 36 presents the passenger comfort response data obtained during each of the H. I. test flights.

NASA Experiments

The Langley Transport Aircraft Projects Office conducted 8 flight experiments (table 1) and obtained passenger comfort responses to various aircraft maneuver motions. The particular maneuvers selected for testing were thought to be representative in type and degree of possible future commercial terminal-area flight operations. The 30 passenger subjects who participated in these experiments (table 37) consisted of 19 males and 11 females. Their ages ranged from 19 to 56 (median = 33). Their previous flying frequency ranged from none (subjects 11, 19, and 27) to that of the seasoned air traveler. Table 38 is a descriptive and parametric summary of the 24 test maneuvers on each of the two aircraft motion command tapes used in the NASA experiments. For example, the seventh maneuver on command tape I was a simple turn at an indicated airspeed of 164 knots and having a maximum roll angle of 31 degrees and maximum roll rate of 19 deg/sec.

Parts (a) through (e) of tables 39 through 46 define the aircraft motions obtained during each of the 8 NASA flights. Specifically, parts (a) through (e) describe the aircraft motions in terms of motion variable mean values (μ), mean absolute values (λ), standard deviations (σ), root-mean-square values (ξ), and maximum deviations from zero ($\hat{}$), respectively.

For example, during segment 3 of NASA flight 1 the mean value (table 39(a)) of roll angle, μ_ϕ was 9.90 degrees, while the corresponding maximum deviation from zero (table 39(e)) of roll angle, $\dagger\phi$, was 17.8 degrees. The corresponding passenger comfort response data are presented as part (f) of each table.

CONCLUDING REMARKS

Aircraft motion data and passenger comfort response data from ride-quality flight experiments using an airborne simulator have been presented. These data will be useful in the analysis of passenger reactions to flight environments, evaluation of the use of portable environment measuring/recording systems, and planning of future experiments.

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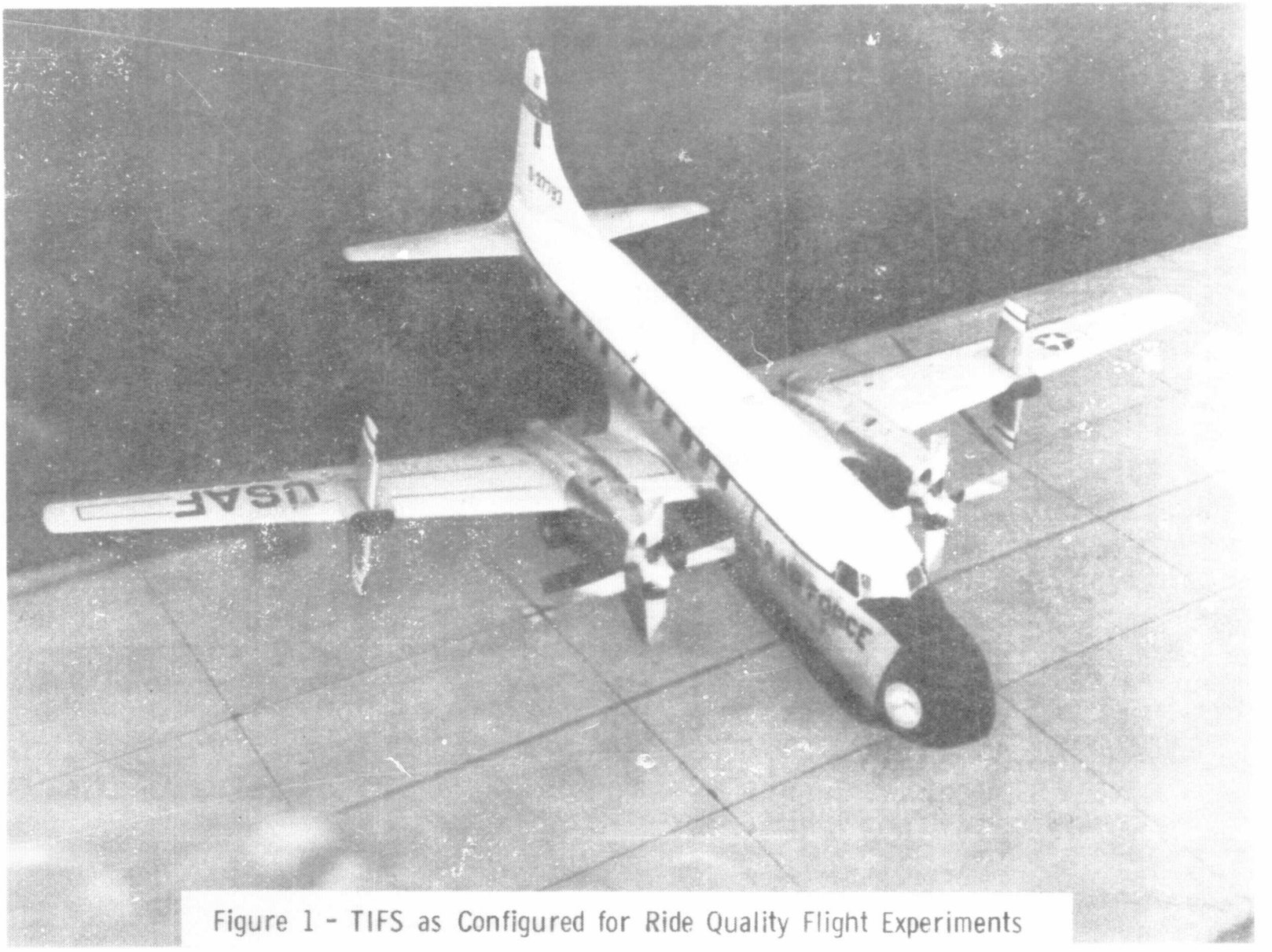


Figure 1 - TIFS as Configured for Ride Quality Flight Experiments

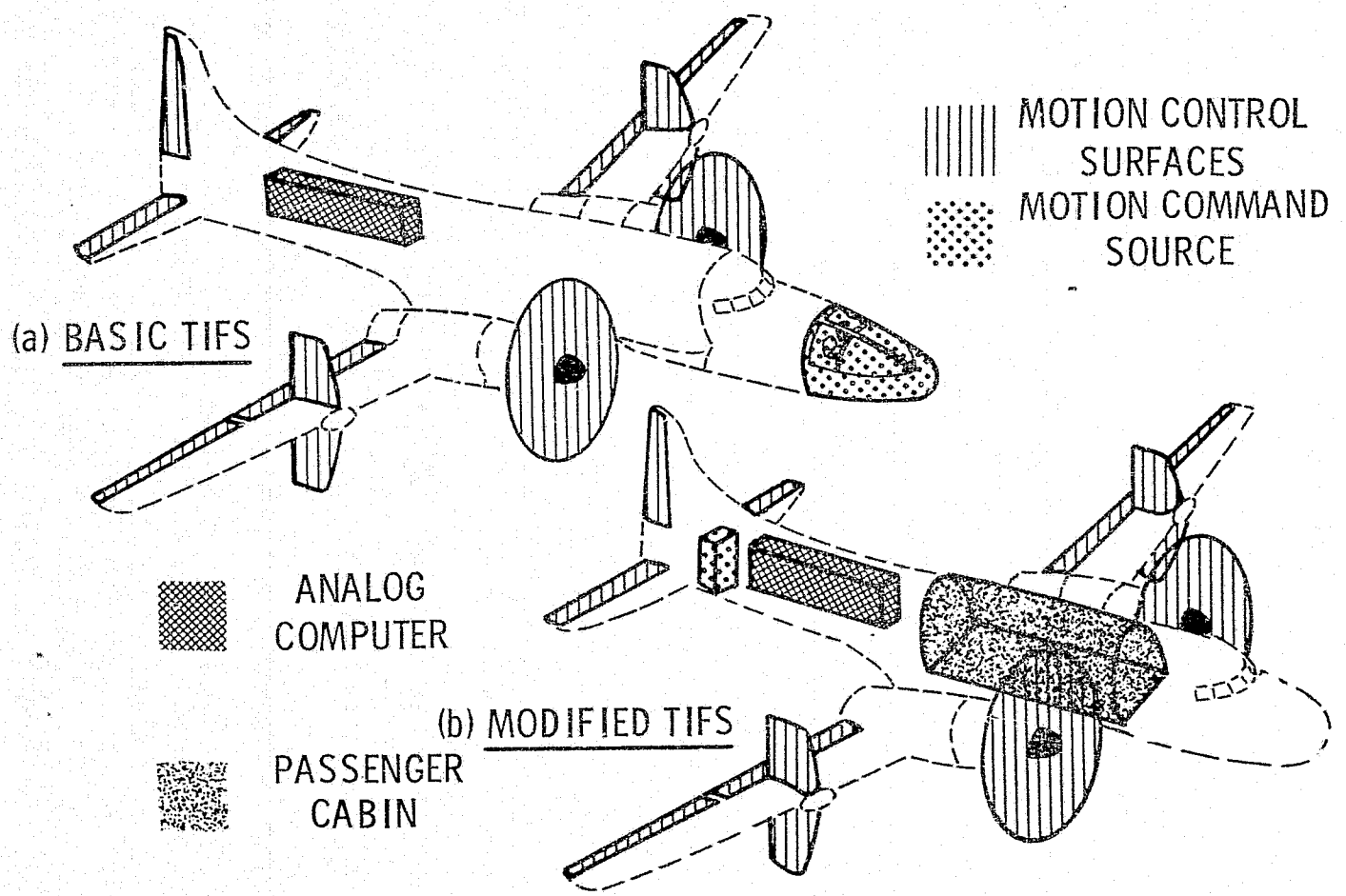


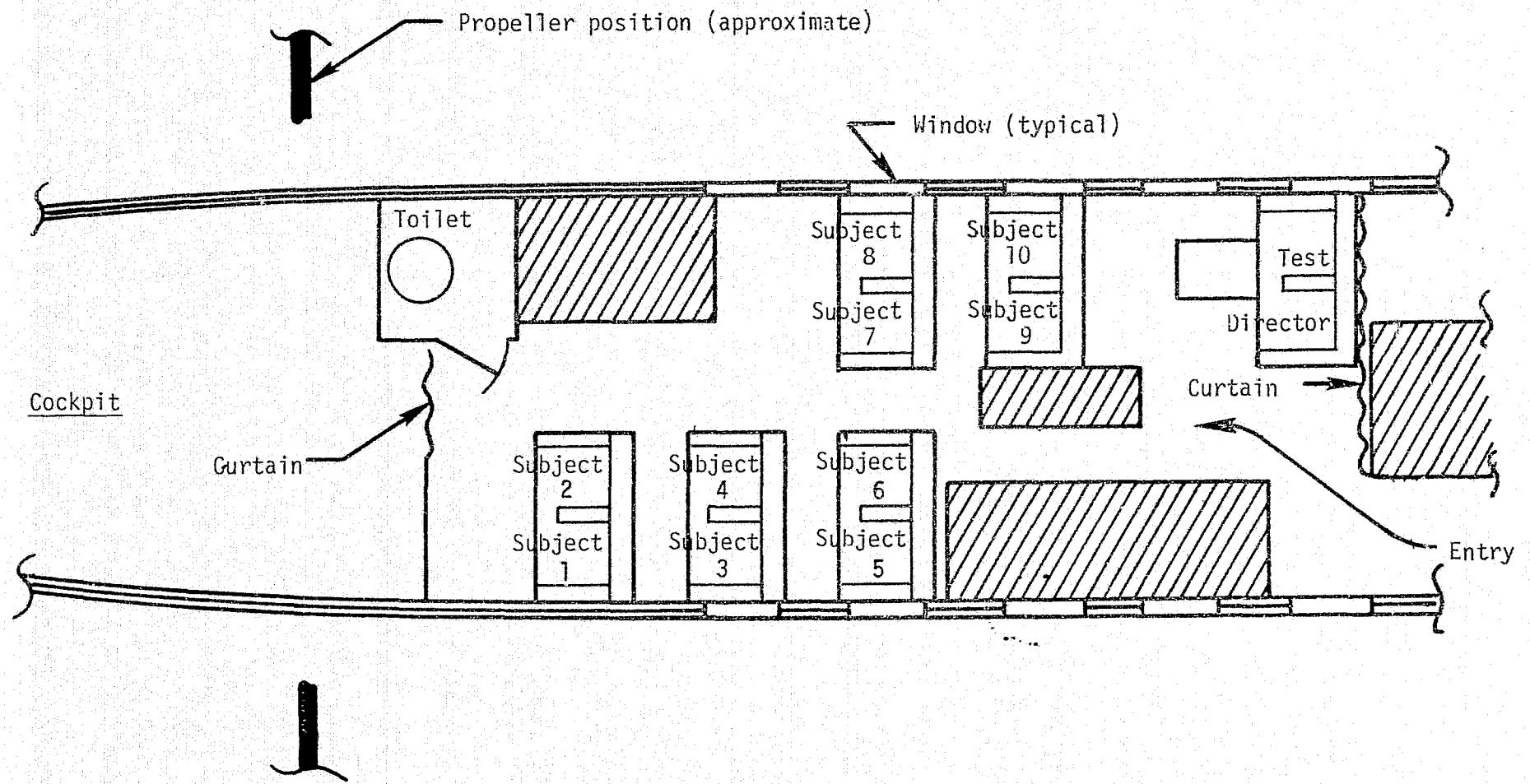
Figure 2. - TIFS modifications for ride-quality research.

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(a) Passenger cabin looking aft

Figure 3. - TIFS ride-quality experiments passenger cabin.



(b) Passenger Cabin Floor Plan

Figure 3 - Concluded

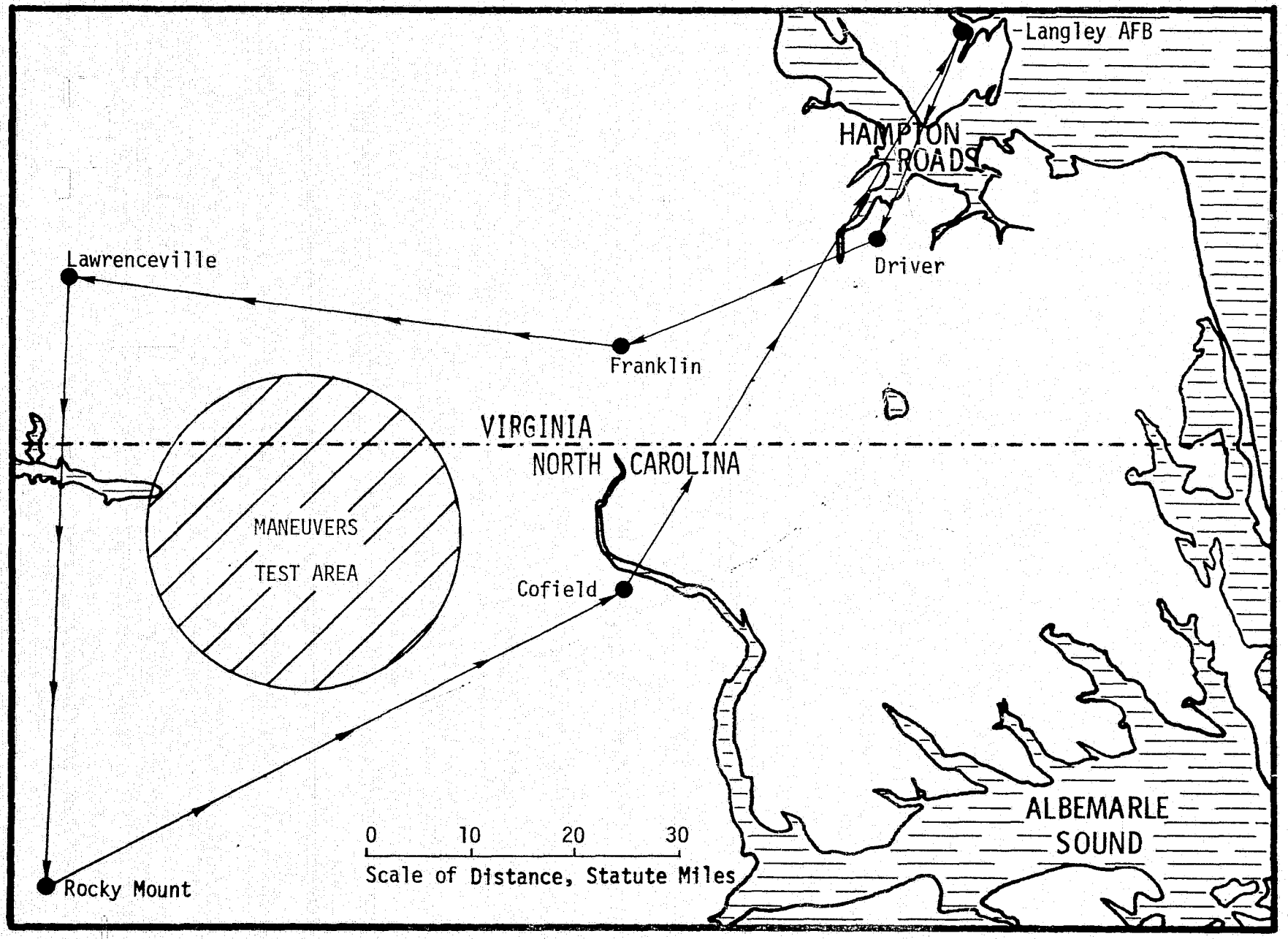


Figure 4 - TIFS Ride-Quality Experiments Flight Path

TABLE 1 - SUMMARY OF DATA

Table	Passenger Characteristics	Flight	MOTION: Type: Random	Type: Sinusoidal	Type: Maneuver	Degrees of Freedom: Longitudinal	Degrees of Freedom: Transverse	Degrees of Freedom: Normal	Degrees of Freedom: Roll	Degrees of Freedom: Pitch	Degrees of Freedom: Yaw
University of Virginia Experiments											
3	X										
4		UVA-1	X				X	X			
5		-2		X					X		
6		-3		X			X	X			
7		-4	X						X		X
8		-5	X				X	X			
9		-6	X				X	X			
10		-7		X					X		
11		-8	X					X			
12		-9		X			X	X			
13		-10	X				X	X			
14		-11		X			X	X			
15		-12	X				X	X			
16		-13	X				X	X	X		X
17		-14		X			X	X			
18		-15		X			X	X			
19		-16	X					X			
20		-17	X						X		X
21		-18	X				X	X			
Hampton Institute Experiments											
22	X										
23		HI-1	X				X	X	X	X	X
24		-2	X				X	X	X	X	X
25		-3	X				X	X	X	X	X
26		-4	X				X	X	X	X	X
27		-5	X				X	X	X	X	X
28		-6	X				X	X	X	X	X
29		-7	X				X	X	X	X	X
30		-8	X				X	X	X	X	X
31		-9	X				X	X	X	X	X
32		-10	X				X	X	X	X	X
33		-11	X				X	X	X	X	X
34		-12	X				X	X	X	X	X
35		-13	X				X	X	X	X	X
36		-14	X				X	X	X	X	X
NASA Experiments											
37	X										
39		NASA-1		X		X	X	X	X	X	X
40		-2		X		X	X	X	X	X	X
41		-3		X		X	X	X	X	X	X
42		-4		X		X	X	X	X	X	X
43		-5		X		X	X	X	X	X	X
44		-6		X		X	X	X	X	X	X
45		-7		X		X	X	X	X	X	X
46		-8		X		X	X	X	X	X	X

Table 2- Commonality of Passenger Subjects Participating in The Three Groups of Experiments

University of Virginia		Hampton Institute		NASA	
Subject Number	U. Va. Flight(s)	Subject Number	H. I. Flight(s)	Subject Number	NASA Flight(s)
3	15, 16	-	-	2	5, 6
7	1-18	-	-	18	1
8	1-7, 10-18	-	-	26	1, 4, 7, 8
9	15, 16	-	-	23	1, 5, 6
12	1-16	-	-	5	4, 7, 8
15	1-18	-	-	10	2-8
19	15-18	62	9, 10	4	2, 3, 5-7
20	1-4, 6-14, 17, 18	57	9, 10	-	-
23	1-7, 12-14	-	-	3	4
24	3-7	-	-	28	1
28	8-11, 15-18	-	-	8	2-8
30	12-14	5	1	-	-
33	17, 18	19	2	-	-
34	17, 18	56	9, 10	1	5, 6
-	-	15	2	14	2, 3
-	-	42	5, 6	17	7, 8
-	-	81	13, 14	19	5, 6
-	-	61	9, 10	20	7, 8
-	-	58	9, 10	22	2-8
-	-	55	9, 10	27	2-8
-	-	29	3, 4	29	7, 8
-	-	59	9, 10	30	5, 6

Table 3 - University of Virginia Passenger Subject Characteristics

Subject Number	Age	Sex	Number of Previous Flights
1	*	*	*
2	*	*	*
3	38	M	1000+
4	27	M	50
5	32	M	100-200
6	*	*	*
7	24	M	15-20
8	35	F	60-100
9	32	M	100+
10	*	*	*
11	*	*	*
12	36	M	3000+
13	22	M	200-300
14	23	F	30
15	25	M	50-100
16	*	*	*
17	*	*	*
18	*	*	*
19	20	F	35
20	30	F	25-40
21	21	M	1
22	23	F	12-15
23	30	M	30+
24	20	F	7
25	20	F	0
26	19	F	1
27	20	F	3
28	20	M	10
29	25	F	25
30	34	F	10
31	18	F	0
32	21	F	1
33	19	M	10
34	21	M	6

*Did not participate.

Table 4 - Data From UVa Flight 1

(a) Aircraft Motion Data

TIFS Flight 325 August 12, 1974

Segment	$n_z(R)$ g_{rms}	$n_y(R)$ g_{rms}
	$I^{(a)}$/ O_T /O_P	I/ O_T /O_P
1	.020/.019/.024	.039/.026/.027
2	/.018/.024	.078/.049/.049
3	/.016/.022	.020/.014/.018
4	/.018/.023	.059/.043/.043
5	/.018/.024	.098/.071/.071
6	/.015/.022	.039/.026/.028
7	/.017/.023	.059/.037/.036
8	/.019/.025	.098/.066/.065
9	/.016/.022	.020/.016/.020
10	/.022/.026	.078/.054/.052
11	.060/.045/.048	.078/.048/.046
12	/.039/.042	.020/.013/.017
13	/.041/.045	.098/.062/.060
14	/.041/.045	.059/.041/.041
15	/ /.043	.039/ /.029
16	/ /.042	.098/ /.066
17	/ /.045	.059/ /.044
18	/ /.048	.020/ /.019
19	/.040/.044	.078/.053/.053
20	/ /.046	.039/ /.028

(a) I, O_T and O_P are defined in symbol list.

Table 4 -Concluded

(b) Passenger Response Data

Seat	1	2	3	4	5	6	7	8	9	10		
Subject	20	15	13	21	8	4	22	12	23	7		
Segment											Mean	Std. Dev.
1	3	3	4	4	3	3	6	4	5	3	3.80	1.03
2	5	3	6	5	4	5	7	6	4	4	4.90	1.20
3	2	2	2	3	2	2	3	2	1	2	2.10	0.57
4	3	4	5	5	4	5	5	4	3	4	4.20	0.79
5	5	5	7	5	5	6	7	5	6	6	5.70	0.82
6	2	3	3	4	2	4	3	3	4	3	3.10	0.74
7	2	4	4	4	3	5	3	4	4	4	3.70	0.82
8	6	5	6	5	6	6	6	5	5	5	5.50	0.53
9	2	1	2	4	2	2	2	3	1	3	2.20	0.92
10	5	3	5	4	3	5	3	4	4	3	3.90	0.88
11	4	4	4	5	4	6	3	4	4	4	4.20	0.79
12	3	2	2	3	2	2	2	2	1	2	2.10	0.57
13	6	5	5	5	6	7	6	5	5	6	5.60	0.70
14	3	3	4	5	4	5	5	3	2	5	3.90	1.10
15	2	2	4	4	3	4	2	3	2	2	2.80	0.92
16	5	4	7	3	6	7	7	5	5	6	5.50	1.35
17	4	4	4	6	3	6	3	4	4	5	4.30	1.06
18	2	2	3	4	2	2	2	2	2	2	2.30	0.67
19	5	5	4	5	5	6	2	4	4	4	4.40	1.07
20	2	3	3	4	3	3	2	3	2	2	2.70	0.67
Mean	3.55	3.35	4.20	4.35	3.60	4.55	3.95	3.75	3.40	3.75	3.85	
Std. Dev.	1.47	1.18	1.51	0.81	1.39	1.70	1.93	1.12	1.54	1.41		1.46

Table 5 - Data From UVa Flight 2

(a) Aircraft Motion Data

TIFS Flight 326 August 12, 1974

Segment	$p(S)^{(a)}$ $(deg/sec)_{rms}$ I/ O_T /O_P
1	2.97/1.99/1.75
2	7.07/4.83/4.28
3	1.41/1.08/0.86
4	5.66/3.89/3.44
5	2.83/1.98/1.73
6	1.41/1.08/0.90
7	4.24/2.90/2.57
8	5.66/3.85/3.41
9	7.07/4.88/4.33
10	2.83/2.01/1.76
11	1.41/1.27/.096
12	5.66/4.26/3.70
13	2.83/2.19/1.88
14	7.07/5.31/4.66
15	4.24/3.21/2.80
16	2.83/2.28/1.97
17	5.66/4.23/3.69
18	1.41/1.20/0.97
19	7.07/5.29/4.62
20	4.24/3.20/2.78

(a) Frequency = 1.0 hz. segments 1-10; 0.5 hz. segments 11-20

Table 5 -Concluded

(b) Passenger Response Data

Seat	1	2	3	4	5	6	7	8	9	10		
Subject	20	15	13	21	8	4	22	12	23	7		
Segment											Mean	Std. Dev.
1	2	4	2	2	3	4	3	3	2	2	2.70	0.82
2	5	5	4	4	6	6	5	5	3	4	4.70	0.95
3	1	2	2	2	3	3	2	2	1	1	1.90	0.74
4	2	5	4	5	6	5	5	4	3	3	4.20	1.23
5	2	4	2	3	4	4	3	3	3	1	2.90	0.99
6	1	2	2	2	3	3	3	2	2	1	2.10	0.74
7	1	3	2	4	4	4	5	4	1	2	3.00	1.41
8	2	4	3	3	6	5	5	5	2	3	3.80	1.40
9	5	5	3	3	6	6	6	5	4	3	4.60	1.26
10	2	3	2	3	3	5	4	3	2	2	2.90	0.99
11	1	1	2	2	2	2	2	2	1	1	1.60	0.52
12	2	2	-	3	3	3	2	2	2	2	2.33	0.50
13	3	2	-	2	3	2	3	2	1	2	2.22	0.67
14	5	4	-	4	5	3	6	3	1	2	3.67	1.58
15	3	3	3	3	3	2	3	2	2	2	2.60	0.52
16	3	2	2	2	2	2	3	2	1	1	2.00	0.67
17	5	3	2	2	3	3	3	2	2	3	2.80	0.92
18	2	1	1	1	2	2	2	2	1	3	1.70	0.67
19	3	4	3	2	4	4	5	4	3	3	3.50	0.85
20	3	3	2	2	3	3	4	3	3	4	3.00	0.67
Mean	2.65	3.10	2.41	2.70	3.70	3.55	3.70	3.00	2.00	2.25	2.91	
Std. Dev.	1.39	1.25	0.80	0.98	1.38	1.32	1.34	1.12	0.92	0.97		1.28

Table 6 - Data From UVa Flight 3

(a) Aircraft Motion Data

Segment	TIFS Flight 327 $n_z(S)$[a] g_{rms} I/ O_T /O_P	August 13, 1974 $n_y(S)$[b] g_{rms} I/ O_T /O_P
1	.031/.033/.037	.043/.052/.052
2	.122/.125/.126	/.052/.052
3	.061/.065/.069	/.052/.052
4	.153/.158/.159	/.053/.052
5	.091/.100/.102	/.058/.057
6	.122/.131/.132	/.054/.054
7	.061/.065/.067	/.051/.051
8	.153/.158/.160	/.051/.051
9	.091/.095/.096	/.052/.052
10	.031/.035/.038	/.053/.052
11	.031/.017/.021	.072/.088/.086
12	.091/.063/.067	/.087/.085
13	.153/.089/.095	/.087/.085
14	.061/.046/.052	/.088/.086
15	.122/.080/.084	/.087/.085
16	.091/.052/.056	/.088/.087
17	.153/.098/.162	/.088/.087
18	.061/.043/.052	/.095/.093
19	.122/.079/.083	/.089/.088
20	.031/.031/.036	/.088/.087

[a] Frequency = 0.3 hz.

[b] Frequency = 0.5 hz.

Table 6 -Concluded

(b) Passenger Response Data

Seat	1	2	3	4	5	6	7	8	9	10		
Subject	20	15	13	21	8	24	22	12	23	7		
Segment											Mean	Std. Dev.
1	3	5	4	3	2	4	6	4	3	3	3.70	1.16
2	3	5	7	7	3	5	6	5	5	6	5.20	1.40
3	5	4	6	6	3	3	5	5	5	4	4.60	1.07
4	6	6	7	7	6	4	7	6	5	7	6.10	0.99
5	6	4	6	6	5	3	5	5	4	5	4.90	0.99
6	5	5	7	7	5	5	6	5	4	6	5.50	0.97
7	5	4	7	7	3	2	7	5	3	3	4.60	1.90
8	4	6	7	7	3	5	7	6	5	5	5.50	1.35
9	3	4	7	7	3	3	6	4	4	3	4.40	1.65
10	2	4	6	6	4	2	5	4	3	3	3.90	1.45
11	3	5	6	5	4	5	7	5	4	3	4.70	1.25
12	3	4	7	6	5	3	6	6	5	4	4.90	1.37
13	3	4	7	6	6	4	7	6	4	5	5.20	1.40
14	3	5	6	6	4	4	6	5	4	4	4.70	1.06
15	2	4	6	6	5	3	5	6	5	5	4.70	1.34
16	2	4	6	7	5	5	5	5	4	4	4.70	1.34
17	3	5	5	-	5	4	6	6	4	4	4.67	1.00
18	4	5	6	-	4	5	6	5	3	3	4.56	1.13
19	5	5	6	-	4	4	5	4	4	3	4.44	0.88
20	3	4	6	-	3	4	7	4	3	2	4.00	1.58
Mean	3.65	4.60	6.25	6.19	4.10	3.85	6.00	5.05	4.05	4.10	4.76	
Std. Dev.	1.27	0.68	0.79	1.05	1.12	0.99	0.79	0.76	0.78	1.29		1.35

Table 7 - Data From UVa Flight 4

(a) Aircraft Motion Data

TIFS Flight 328 August 13, 1974

Segment	p(R) $(deg/sec)_{rms}$ I/ O_T/O_p	r(R) $(deg/sec)_{rms}$ I/ O_T/O_p
1	.080/0.62/.053	0.18/0.20/0.25
2	/.062/0.76	0.36/0.58/0.45
3	/0.64/0.53	0/0.36/0.31
4	/0.68/0.48	0.45/0.42/0.52
5	/0.78/0.48	0.27/0.65/0.35
6	/0.69/ 53	0/0.34/0.30
7	/0.65/0.71	0.27/0.45/0.48
8	/0.56/0.56	0.45/0.58/0.36
9	/ /0.50	0.18/ /0.44
10	/ /0.42	0.36/ /0.53
11	2.00/1.74/1.30	0.27/0.45/0.35
12	/1.54/1.14	0/0.22/0.15
13	/1.52/1.58	0.36/0.62/0.54
14	/1.39/1.45	0.18/0.42/0.29
15	/ /1.27	0.45/ /0.55
16	/ /1.15	0.36/ /0.38
17	/1.48/1.27	0.18/0.23/0.27
18	/1.34/1.16	0/0.06/0.13
19	/1.43/1.25	0.45/0.45/0.36
20	/1.49/1.27	0.27/0.62/0.06

Table 7 -Concluded

(b) Passenger Response Data

Seat	1	2	3	4	5	6	7	8	9	10		
Subject	20	15	13	21	8	24	22	12	23	7		
Segment											Mean	Std. Dev.
1	3	2	1	1	2	1	1	2	1	1	1.50	0.71
2	4	2	1	2	2	1	1	2	1	1	1.70	0.95
3	6	2	2	1	2	1	1	2	1	2	2.00	1.49
4	5	2	2	1	2	2	2	2	2	2	2.20	1.03
5	5	2	2	1	2	2	2	2	2	2	2.20	1.03
6	6	2	2	1	2	2	1	3	3	3	2.50	1.43
7	3	3	2	1	2	2	2	4	2	2	2.30	0.82
8	6	2	2	-	2	1	2	3	2	2	2.44	1.42
9	6	3	2	-	2	2	2	2	2	3	2.67	1.32
10	5	2	2	1	2	1	2	3	2	2	2.20	1.14
11	3	3	1	2	2	1	2	2	1	2	1.90	0.74
12	3	3	1	2	3	1	2	3	1	2	2.10	0.88
13	-	2	1	1	3	2	2	2	1	2	1.78	0.67
14	-	3	1	1	3	1	3	2	1	1	1.78	0.97
15	-	2	3	1	3	1	5	2	1	1	2.11	1.36
16	-	3	3	2	3	1	3	2	1	2	2.22	0.83
17	-	2	2	2	3	2	2	3	1	2	2.11	0.60
18	-	2	2	1	3	1	2	2	2	1	1.78	0.67
19	-	2	2	2	3	1	2	2	1	2	1.89	0.60
20	-	3	2	2	3	2	2	3	1	2	2.22	0.67
Mean	4.58	2.35	1.80	1.39	2.45	1.40	2.05	2.40	1.45	1.85	2.08	
Std. Dev.	1.31	0.49	0.62	0.50	0.51	0.50	0.89	0.60	0.60	0.59		1.00

Table 8 - Data From UVa Flight 5

(a) Aircraft Motion Data

TIFS Flight 332 August 14, 1974

Segment	$n_z(R)$ g_{rms} I/ O_T/O_P	$n_y(R)$ g_{rms} I/ O_T/O_P
1	.032/.049/.052	.034/.056/.056
2	.064/.107/.108	/.056/.055
3	.016/.031/.035	/.059/.060
4	.080/.141/.143	/.053/.054
5	.048/.086/.088	/.058/.059
6	.016/.033/.037	/.056/.057
7	.048/.081/.083	/.059/.060
8	.032/.057/.059	/.055/.055
9	.080/.149/.152	/.061/.061
10	.064/.115/.119	/.057/.059
11	.064/.115/.117	.011/.020/.021
12	.080/.152/.151	/.020/.023
13	.032/.055/.059	/.020/.022
14	.048/.083/.085	/.020/.021
15	.016/.027/.031	/.018/.020
16	.064/.110/.114	/.019/.021
17	.048/.090/.101	/.021/.022
18	.080/.152/.156	/.020/.022
19	.016/.030/.033	/.023/.024
20	.032/.057/.061	/.021/.022

Table 8 -Concluded

(b) Passenger Response Data

Seat	1	2	3	4	5	6	7	8	9	10		
Subject	13	-	21	15	24	8	7	23	12	4		
Segment											Mean	Std. Dev.
1	5	-	4	4	3	4	5	2	6	5	4.22	1.20
2	5	-	5	5	4	4	5	5	6	6	5.00	0.71
3	4	-	5	5	3	5	4	4	5	5	4.44	0.73
4	5	-	6	6	5	5	6	5	6	6	5.56	0.53
5	4	-	6	6	3	5	5	4	5	7	5.00	1.22
6	4	-	5	5	3	5	4	3	5	7	4.56	1.24
7	4	-	5	5	4	4	5	4	5	6	4.67	0.71
8	4	-	5	4	5	4	5	3	5	6	4.56	0.88
9	5	-	6	5	6	5	6	5	6	7	5.67	0.71
10	4	-	5	4	5	4	5	4	6	7	4.89	1.05
11	3	-	5	4	3	4	4	3	4	4	3.78	0.67
12	4	-	-	5	6	5	4	3	4	4	4.38	0.92
13	3	-	-	4	2	3	3	1	4	3	2.88	0.99
14	3	-	-	3	2	2	2	1	3	3	2.38	0.74
15	2	-	-	2	1	3	1	1	2	2	1.75	0.71
16	3	-	-	4	2	3	2	2	3	4	2.88	0.83
17	3	-	-	4	2	3	2	2	4	4	3.00	0.93
18	3	-	4	5	2	4	5	3	5	5	4.00	1.12
19	2	-	4	3	3	3	2	1	3	2	2.56	0.88
20	2	-	4	3	1	2	2	1	2	3	2.22	0.97
Mean	3.60	-	4.93	4.30	3.25	3.85	3.85	2.85	4.45	4.80	3.95	
Std. Dev.	0.99	-	0.73	1.03	1.52	0.99	1.53	1.42	1.32	1.67		1.42

Table 9 - Data From UVa Flight 6

(a) Aircraft Motion Data

TIFS Flight 333 August 15, 1974

Segment	$n_z(R)$ g_{rms} I/ O_T/O_P	$n_y(R)$ g_{rms} I/ O_T/O_P
1	.016/.019/.025	.011/.009/.015
2	.048/.041/.045	/.008/.015
3	.080/.078/.081	/.010/.015
4	.112/.099/.102	/.009/.014
5	.056/.052/.062	/.008/.014
6	.140/.142/.147	/.008/.014
7	.056/.052/.055	/.009/.014
8	.028/.028/.032	/.008/.014
9	.112/.106/.109	/.009/.014
10	.084/.085/.090	/.018/.020
11	.084/.076/.081	.034/.022/.026
12	.112/.103/.105	/.022/.026
13	.028/.028/.032	/.022/.025
14	.056/.051/.056	/.021/.026
15	.140/.081/ 0	/.020/ 0
16	.084/.057/.060	/.024/.027
17	.056/.109/.112	/.023/.026
18	.112/.134/.138	/.023/.025
19	.140/.029/.033	/.022/.025
20	.028/ /.069	/ /.010

Table 9 -Concluded

(b) Passenger Response Data

Seat	1	2	3	4	5	6	7	8	9	10		
Subject	13	21	20	15	24	8	7	23	12	22		
Segment											Mean	Std. Dev.
1	3	2	2	2	1	2	2	1	2	1	1.80	0.63
2	3	2	3	2	1	2	2	1	2	1	1.90	0.74
3	4	2	2	3	2	3	4	1	4	2	2.70	1.06
4	5	2	2	3	2	3	4	2	4	3	3.00	1.05
5	4	2	2	2	1	2	3	2	4	2	2.40	0.97
6	5	4	3	4	3	4	5	3	5	5	4.10	0.88
7	4	2	4	3	1	2	3	1	4	4	2.80	1.23
8	4	2	2	2	1	3	2	1	3	3	2.30	0.95
9	5	4	5	3	3	3	5	2	4	5	3.90	1.10
10	4	-	3	2	5	3	4	2	3	6	3.56	1.33
11	4	-	4	3	2	3	4	3	4	5	3.56	0.88
12	5	-	3	3	3	4	5	2	5	3	3.67	1.12
13	4	-	6	3	2	3	5	2	3	3	3.44	1.33
14	4	-	5	3	2	3	5	3	3	3	3.44	1.01
15	-	-	-	-	-	-	-	-	-	-	-	-
16	4	-	3	3	5	4	5	2	3	3	3.56	1.01
17	3	-	2	2	2	5	5	2	3	3	3.00	1.22
18	4	-	2	2	3	5	6	3	5	5	3.89	1.45
19	5	-	2	3	4	5	6	4	5	5	4.33	1.22
20	4	-	1	3	2	3	4	2	4	3	2.89	1.05
Mean	4.11	2.44	2.95	2.68	2.37	3.26	4.16	2.05	3.68	3.42	3.15	
Std. Dev.	0.66	0.88	1.31	0.58	1.26	0.99	1.26	0.85	0.95	1.43		1.25

Table 10 - Data From UVa Flight 7

(a) Aircraft Motion Data

TIFS Flight 334 August 15, 1974

Segment	$p(S)^{(a)}$ $(deg/sec)_{rms}$ I/ $0_T/0_P$
1	6.79/4.37/3.84
2	8.91/5.84/5.14
3	2.21/1.48/1.26
4	11.20/7.28/6.51
5	4.41/2.98/2.61
6	15.4/10.20/8.90
7	7.72/5.04/4.39
8	19.52/12.94/11.27
9	11.79/7.65/6.61
10	4.07/2.56/2.23
11	3.39/2.72/2.38
12	10.10/8.00/7.02
13	16.97/13.87/11.97
14	6.79/5.59/4.88
15	13.58/10.98/9.58
16	3.73/3.24/2.84
17	9.50/7.88/6.83
18	1.87/2.40/2.09
19	7.64/6.23/5.43
20	5.77/4.63/4.04

(a) Frequency = 0.3 hz. segments 1-10; 0.1 hz. segments 11-20

Table 10 -Concluded

(b) Passenger Response Data

Seat	1	2	3	4	5	6	7	8	9	10		
Subject	13	21	20	15	8	24	23	7	22	12		
Segment											Mean	Std. Dev.
1	2	2	3	3	2	1	2	2	3	2	2.20	0.63
2	2	2	2	3	3	2	3	2	5	2	2.60	0.97
3	2	1	1	2	2	2	1	1	3	2	1.70	0.67
4	1	2	5	3	3	3	1	2	6	2	2.80	1.62
5	2	2	3	2	2	2	1	2	5	2	2.30	1.06
6	2	3	6	3	3	2	1	3	6	3	3.20	1.62
7	2	1	3	2	2	1	1	2	6	2	2.20	1.48
8	2	2	5	3	3	3	2	5	7	4	3.60	1.65
9	2	2	3	3	2	2	1	5	7	2	2.90	1.79
10	2	2	2	3	2	1	1	2	6	2	2.30	1.42
11	2	2	2	2	2	1	1	1	6	2	2.10	1.45
12	3	-	3	3	2	2	1	5	6	3	3.11	1.54
13	4	2	7	4	7	5	5	7	7	5	5.30	1.70
14	3	3	6	3	7	4	4	6	6	3	4.50	1.58
15	4	5	5	5	7	5	5	7	7	6	5.60	1.07
16	3	4	5	3	6	4	3	5	6	2	4.10	1.37
17	3	4	6	4	6	6	2	7	6	3	4.70	1.70
18	3	2	4	3	6	3	1	7	6	2	3.70	2.00
19	4	-	7	4	6	6	3	7	6	2	5.00	1.80
20	3	-	4	3	6	6	2	6	6	2	4.22	1.79
Mean	2.55	2.41	4.10	3.05	3.95	3.05	2.05	4.20	5.80	2.65	3.40	
Std. Dev.	0.83	1.06	1.77	0.76	2.09	1.76	1.36	2.28	1.11	1.14		1.83

Table 11 - Data From UVa Flight 8

(a) Aircraft Motion Data

TIFS Flight 349 September 13, 1974

Segment	$n_z(R)$ g_{rms} I/ O_T/O_p [a]
1	.064/.042/ -
2	.128/.100/ -
3	.032/.024/ -
4	.096 .066/ -
5	.160/.119/ -
6	.064/.046/ -
7	.096/.069/ -
8	.160/.124/ -
9	.032/.025/ -
10	.128/.099/ -
11	.128/.101/ -
12	.032/.024/ -
13	.160/.117/ -
14	.096/.071/ -
15	.064/.051/ -
16	.160/.115/ -
17	.096/.070/ -
18	.032/.033/ -
19	.160/.093/ -
20	.064/.051/ -

[a] Not available because of equipment malfunction.

Table 11 -Concluded

(b) Passenger Response Data

Seat	1	2	3	4	5	6	7	8	9	10		
Subject	5	25	13	26	27	28	12	29	15	7		
Segment											Mean	Std. Dev.
1	2	5	2	2	5	2	2	4	2	2	2.80	1.32
2	4	3	4	5	6	3	3	5	3	4	4.00	1.05
3	2	4	2	2	2	2	2	1	2	2	2.10	0.75
4	4	5	3	3	2	3	2	3	2	3	3.00	0.94
5	6	5	4	3	5	5	3	5	3	5	4.40	1.07
6	4	5	3	4	2	3	2	1	2	4	3.00	1.25
7	5	4	2	5	2	3	2	1	3	3	3.00	1.33
8	5	5	5	5	4	4	3	5	4	6	4.60	0.84
9	4	5	3	3	2	4	2	2	2	4	3.10	1.10
10	5	5	4	3	2	5	2	4	3	5	3.80	1.23
11	5	5	5	3	4	4	2	3	3	4	3.80	1.03
12	4	4	3	4	3	3	2	1	2	2	2.80	1.03
13	7	3	4	4	4	4	3	5	2	4	4.00	1.33
14	5	3	4	4	4	4	2	2	3	3	3.40	0.97
15	4	3	4	4	4	4	2	2	2	2	3.10	0.99
16	6	3	4	3	5	5	3	5	5	4	4.30	1.06
17	5	3	4	3	5	5	2	4	3	3	3.70	1.06
18	3	5	3	3	2	4	2	1	2	2	2.70	1.16
19	3	5	4	5	4	4	3	5	3	3	3.90	0.88
20	3	5	3	5	2	4	2	2	3	2	3.10	1.20
Mean	4.30	4.25	3.50	3.65	3.45	3.75	2.30	3.05	2.70	3.35	3.43	
Std. Dev.	1.30	0.91	0.89	0.99	1.36	0.91	0.47	1.64	0.80	1.18		1.22

Table 12 - Data From UVa Flight 9

(a) Aircraft Motion Data

TIFS Flight 350 September 13, 1974

Segment	$n_z(S)$[a] g_{rms} I/ O_T/O_P[c]	$n_y(S)$[b] g_{rms} I/ O_T/O_P[c]
1	.031/.035/ -	.014/.020/ -
2	.122/.133/ -	/.021/ -
3	.061/.068/ -	/.019/ -
4	.153/.170/ -	/.020/ -
5	.091/.102/ -	/.020/ -
6	.122/.135/ -	/.020/ -
7	.061/.068/ -	/.020/ -
8	.153/.170/ -	/.020/ -
9	.091/.102/ -	/.021/ -
10[d]	.031/.041/ -	/.021/ -

[a] Frequency = 0.3 hz.

[b] Frequency = 0.5 hz.

[c] Not available because of equipment malfunction

[d] Testing discontinued due to passenger discomfort

Table 12 -Concluded

(b) Passenger Response Data

Seat	1	2	3	4	5	6	7	8	9	10		
Subject	28	12	26	13	25	7	27	15	29	5		
Segment											Mean	Std. Dev.
1	3	3	1	2	3	1	3	3	5	5	2.90	1.37
2	4	4	5	5	5	2	4	4	5	6	4.40	1.07
3	4	3	2	4	4	3	3	3	4	4	3.40	0.70
4	5	4	3	6	4	3	6	5	7	7	5.00	1.49
5	4	4	-	5	5	-	4	4	5	5	4.50	0.53
6	5	4	-	4	3	-	6	4	6	7	4.88	1.36
7	4	3	-	4	3	3	3	3	5	7	3.89	1.36
8	5	3	6	5	5	6	5	5	6	7	5.30	1.06
9	5	3	-	5	4	5	4	3	7	6	4.67	1.32
10	5	3	-	4	4	5	3	3	5	6	4.22	1.09
Mean	4.40	3.40	3.40	4.40	4.00	3.50	4.10	3.70	5.50	6.00	4.30	
Std. Dev.	0.70	0.52	2.07	1.07	0.82	1.69	1.20	0.82	0.97	1.05		1.33

Table 13 - Data From UVa Flight 10

(a) Aircraft Motion Data

TIFS Flight 351 September 13, 1974

Segment	$n_z(R)$ g_{rms} I/ O_T/O_P	$n_y(R)$ g_{rms} I/ O_T/O_P
1	.036/.024/.026	.025/.016/.026
2	.108/.068/.055	/.018/.028
3	.180/.126/.105	/.018/.029
4	.072/.041/.041	/.016/.025
5	.144/.100/.077	/.018/.027
6	.072/ /.048	/ /.027
7	.180/ /.111	/ /.027
8	.036/ /.031	/ /.027
9	.144/ /.092	/ /.029
10	.108/ /.071	/ /.028
11	.108/ /.070	.076/ /.072
12	.180/ /.122	/ /.078
13	.036/ /.033	/ /.076
14	.144/ /.092	/ /.076
15	.072/ /.050	/ /.072
16	.180/.128/.124	/.050/.074
17	.108/.074/.071	/.052/.076
18	.144/.100/.098	/.050/.076
19	.072/.042/.047	/.051/.074
20	.036/.027/.033	/.049/.075

Table 13 -Concluded

(b) Passenger Response Data

Seat	1	2	3	4	5	6	7	8	9	10		
Subject	28	8	27	20	25	7	13	15	4	12		
Segment											Mean	Std. Dev.
1	2	2	2	1	2	2	3	3	3	2	2.20	0.63
2	5	2	2	3	5	3	4	3	4	2	3.30	1.16
3	5	4	2	5	5	6	5	5	5	3	4.50	1.18
4	4	2	2	4	4	4	4	3	4	2	3.30	0.95
5	5	3	2	3	3	5	5	4	3	3	3.60	1.07
6	4	2	2	3	3	4	4	3	3	2	3.00	0.82
7	5	3	3	6	3	6	5	4	5	3	4.30	1.25
8	4	2	2	3	3	4	3	3	3	2	2.90	0.74
9	5	3	4	5	-	5	4	3	4	-	4.13	0.83
10	4	2	4	3	-	5	3	3	4	2	3.33	1.00
11	6	4	6	6	-	5	3	4	5	2	4.56	1.42
12	6	5	6	6	-	6	4	5	6	3	5.22	1.09
13	6	4	5	5	6	5	4	4	6	2	4.70	1.25
14	6	5	5	5	6	5	3	4	7	5	5.10	1.10
15	6	4	5	4	5	5	4	4	6	4	4.70	0.82
16	6	4	6	5	5	6	4	4	5	4	4.90	0.88
17	6	3	5	4	5	5	4	3	5	2	4.20	1.23
18	6	3	6	6	6	6	3	4	6	2	4.80	1.62
19	6	3	5	3	5	6	4	3	5	2	4.20	1.40
20	6	3	4	4	5	6	-	3	5	1	4.11	1.62
Mean	5.15	3.15	3.90	4.20	4.44	4.95	3.84	3.60	4.70	2.53	4.05	
Std. Dev.	1.09	0.99	1.62	1.36	1.26	1.10	0.69	0.68	1.17	0.96		1.35

Table 14 - Data From UVa Flight 11

(a) Aircraft Motion Data

TIFS Flight 352 September 13, 1974

Segment	$n_z(S)^{(a)}$ g_{rms} I/ σ_T/σ_P	$n_y(S)^{(b)}$ g_{rms} I/ σ_T/σ_P
1	.031/.012/.021	.043/.057/.087
2	.091/.064/.065	/.057/.087
3	.153/.095/.097	/.057/.084
4	.061/.038/.048	/.057/.083
5	.122/.082/.086	/.058/.085
6	.091/.059/.063	/.058/.087
7	.153/.104/.107	/.057/.087
8	.061/.042/.046	/.059/.089
9	.122/.082/.087	/.058/.090
10[a]	.031/.026/.032	/.059/.090

(a) Frequency = 0.3 hz.

(b) Frequency = 0.5 hz.

(c) Testing discontinued due to passenger discomfort

Table 14 -Concluded

(b) Passenger Response Data

Seat	1	2	3	4	5	6	7	8	9	10		
Subject	4	28	20	27	25	7	13	8	12	15		
Segment											Mean	Std. Dev.
1	4	5	3	6	6	3	4	3	3	3	4.00	1.25
2	3	5	4	6	6	2	4	3	3	3	3.90	1.37
3	4	5	3	6	6	4	4	4	3	3	4.20	1.14
4	4	5	4	6	6	3	5	3	3	3	4.20	1.23
5	5	5	4	6	6	-	5	3	3	3	4.44	1.24
6	5	5	5	6	6	6	4	3	3	3	4.60	1.26
7	5	5	3	7	5	5	4	5	3	3	4.50	1.27
8	5	5	2	6	4	3	4	4	2	3	3.80	1.32
9	6	5	4	6	4	3	4	4	3	3	4.20	1.14
10	6	5	4	6	4	-	4	3	2	3	4.11	1.36
Mean	4.70	5.00	3.60	6.10	5.30	3.63	4.20	3.50	2.80	3.00	4.19	
Std. Dev.	0.95	0.00	0.84	0.32	0.95	1.30	0.42	0.71	0.42	0.00		1.22

Table 15- Date From UVa Flight 12

(a) Aircraft Motion Data

TIFS Flight 353 September 14, 1974

Segment	$n_z(R)$ g_{rms} I/	O_T/O_P	$n_y(R)$ g_{rms} I/	O_T/O_P
1	.080/	/.065	.039/	/.028
2	/	/.068	.078/	/.053
3	/	/.061	.020/	/.015
4	/	/.060	.059/	/.047
5	/	/.058	.098/	/.059
6	/	/.062	.032/	/.024
7	/	/.066	.050/	/.033
8	/	/.066	.084/	/.062
9	/	/.064	.017/	/.015
10	/	/.066	.067/	/.048
11	.040/	/.036	.067/	/.043
12	/	/.032	.017/	/.014
13	/	/.034	.084/	/.058
14	/	/.038	.050/	/.036
15	/	/.033	.032/	/.027
16	/	/.034	.084/	/.063
17	/	/.034	.050/	/.039
18	/	/.037	.017/	/.013
19	/	/.034	.067/	/.049
20	/	/.030	.032/	/.019

Table 15 -Concluded

(b) Passenger Response Data

Seat	1	2	3	4	5	6	7	8	9	10		
Subject	4	8	15	12	30	20	13	25	23	7		
Segment											Mean	Std. Dev.
1	3	2	2	2	2	5	3	3	1	2	2.50	1.08
2	5	4	3	2	5	4	3	3	2	3	3.40	1.07
3	4	2	2	2	3	3	3	3	1	3	2.60	0.84
4	5	3	3	3	4	3	3	3	1	4	3.20	1.03
5	6	4	3	3	6	4	4	4	2	2	3.80	1.40
6	4	4	2	2	3	3	3	3	1	2	2.70	0.95
7	5	4	2	2	3	2	3	3	-	1	2.78	1.20
8	6	5	3	3	6	3	4	3	-	3	4.00	1.32
9	4	4	2	3	4	2	2	3	-	2	2.89	0.93
10	5	4	3	2	3	3	2	-	-	3	3.13	0.99
11	6	5	2	2	5	2	3	-	-	2	3.38	1.69
12	3	4	2	2	2	1	2	-	-	3	2.38	0.92
13	6	5	3	4	4	5	3	-	-	2	4.00	1.31
14	5	4	3	3	3	4	3	-	-	2	3.38	0.92
15	4	3	2	2	3	1	3	-	-	2	2.50	0.93
16	7	5	3	4	5	2	-	-	-	4	4.29	1.60
17	5	4	2	2	4	2	-	-	1	3	2.88	1.36
18	3	3	2	2	2	1	-	-	1	3	2.13	0.83
19	5	4	3	3	4	3	3	-	2	3	3.33	0.87
20	3	3	2	2	2	1	2	-	1	2	2.00	0.71
Mean	4.70	3.80	2.45	2.50	3.65	2.70	2.88	3.11	1.30	2.55	3.05	
Std. Dev.	1.17	0.89	0.51	0.69	1.27	1.26	0.60	0.33	0.48	0.76		1.22

Table 16 - Data From UVa Flight 13

(a) Aircraft Motion Data

TIFS Flight 354 September 14, 1974

Segment	p(R) $(deg/sec)_{rms}$		r(R) $(deg/sec)_{rms}$	
	I/	O_T/O_p	I/	O_T/O_p
1	0/	/0	0.20/	/0
2	/	/1.06	0.60/	/0.39
3	/	/0.29	1.00/	/0.41
4	/	/0.28	0.40/	/0.14
5	/	/0.34	0.80/	/0.30
6	/	/0.31	0.40/	/0.15
7	/	/0.61	1.00/	/0.43
8	/	/0.83	0.20/	/0.22
9	/	/0.81	0.80/	/0.54
10	/	/0.46	0.60/	/0.24
11	1.20/	/0.63	0 /	/0.07
12	2.00/	/2.72	/	/0.25
13	0.40/	/0.69	/	/0.08
14	1.60/	/2.09	/	/0.11
15	0.80/	/1.17	/	/0.10
16	2.00/	/3.12	/	/0.35
17	1.20/	/2.14	/	/0.65
18	1.60/	/2.53	/	/0.19
19	0.80/	/1.48	/	/0.11
20	0.40/	/0.83	/	/0.08

(a) $n_z \approx .040\ g_{rms}$ $n_y \approx .028\ g_{rms}$

Table 16 -Concluded

(b) Passenger Response Data

Seat	1	2	3	4	5	6	7	8	9	10		
Subject	20	15	13	25	8	4	30	12	23	7		
Segment											Mean	Std. Dev.
1	3	3	2	2	2	2	1	2	1	2	2.00	0.67
2	3	2	2	2	2	2	1	2	1	2	1.90	0.57
3	2	2	2	2	2	3	2	2	1	2	2.00	0.47
4	3	2	2	3	2	3	2	2	1	2	2.20	0.63
5	3	2	2	3	3	3	3	2	1	1	2.30	0.82
6	5	2	3	3	3	3	2	2	1	1	2.50	1.18
7	4	2	3	3	2	2	2	2	1	1	2.20	0.92
8	6	2	2	3	2	2	2	2	1	-	2.44	1.42
9	5	3	2	3	2	2	3	2	1	1	2.40	1.17
10	5	3	3	3	2	2	3	2	1	1	2.50	1.18
11	6	3	3	3	2	3	3	2	1	3	2.90	1.29
12	5	2	2	3	2	2	2	3	1	2	2.40	1.07
13	7	3	3	3	2	2	3	3	1	3	3.00	1.56
14	6	3	2	3	2	2	2	2	1	3	2.60	1.35
15	5	3	3	3	3	4	2	2	1	4	3.00	1.15
16	6	3	3	3	3	3	2	2	1	4	3.00	1.33
17	5	4	3	-	3	3	3	2	1	3	3.00	1.12
18	5	3	3	-	3	3	3	2	1	2	2.78	1.09
19	5	3	3	-	2	2	3	2	1	2	2.56	1.13
20	5	2	3	-	3	4	3	3	1	3	3.00	1.12
Mean	4.70	2.60	2.55	2.81	2.35	2.60	2.35	2.15	1.00	2.21	2.53	
Std. Dev.	1.30	0.60	0.51	0.40	0.49	0.68	0.67	0.37	0.00	0.98		1.10

Table 17 - Data From UVa Flight 14

(a) Aircraft Motion Data

TIFS Flight 355 — September 14, 1974

Segment	$n_z(S)$ g_{rms} I/ $0_T/0_P$	$n_y(S)$[a] g_{rms} I/ $0_T/0_P$
1	0/.008/.015	.017/.014/.015
2	/ 008/.015	.051/.050/.052
3	/ /.018	.034/ /.027
4	/ /.018	.085/ /.064
5	/.009/.016	.051/.038/.041
6	/.007/.016	.068/.051/.053
7	/.012/.020	.034/.026/.029
8	/.009/.017	.085/.064/.065
9	/.015/.024	.051/.038/.041
10	/.018/.023	.017/.015/.015
11	.035/.033/.032	0/.012/.011
12	.094/.062/.066	/.004/.008
13	.197/.133/.134	/.012/.010
14	.080/.050/.053	/.006/.008
15	.152/.104/.106	/.009/.011
16	.111/.077/.081	/.005/.009
17	.195/.130/.132	/.003/.006
18	.077/.051/.054	/.002/.006
19	.152/.104/.107	/.011/.009
20	.040/.030/.035	/.003/.007

[a] Frequency = 1.0 hz.

Table 17 -Concluded

(b) Passenger Response Data

Seat	1	2	3	4	5	6	7	8	9	10		
Subject	-	23	7	13	25	4	8	15	30	20		
Segment											Mean	Std. Dev.
1	-	1	3	2	3	3	2	2	3	2	2.33	0.71
2	-	2	3	4	5	5	4	3	5	4	3.89	1.05
3	-	2	2	3	5	4	2	2	5	3	3.11	1.27
4	-	3	4	4	6	6	4	3	6	4	4.44	1.24
5	-	3	4	3	5	4	3	2	5	3	3.56	1.01
6	-	-	4	4	5	5	5	3	5	4	4.38	0.74
7	-	-	4	3	4	4	3	2	4	2	3.25	0.89
8	-	-	5	3	5	7	5	4	5	2	4.50	1.51
9	-	-	5	4	5	5	4	3	4	3	4.13	0.83
10	-	-	3	3	4	3	3	3	3	4	3.25	0.46
11	-	-	2	3	3	3	3	2	3	2	2.63	0.52
12	-	-	3	3	3	4	3	3	3	3	3.13	0.35
13	-	-	4	4	5	4	4	3	5	2	3.88	0.99
14	-	-	3	3	4	3	3	2	4	3	3.13	0.64
15	-	-	4	3	4	4	4	3	3	3	3.50	0.53
16	-	2	4	2	4	3	3	3	3	2	2.89	0.78
17	-	2	4	3	6	4	4	4	3	2	3.56	1.24
18	-	1	2	3	3	3	3	2	3	3	2.56	0.73
19	-	1	3	3	5	3	4	3	3	2	3.00	1.12
20	-	1	2	3	3	2	3	2	2	2	2.22	0.67
Mean	-	1.80	3.40	3.15	4.35	3.95	3.45	2.70	3.85	2.75	3.35	
Std. Dev.	-	0.79	0.94	0.59	0.99	1.19	0.83	0.66	1.09	0.79		1.10

Table 18 - Data From UVa Flight 15

(a) Aircraft Motion Data

TIFS Flight 356 September 16, 1974

Segment	$n_z(S)$[a] g_{rms} I/ O_T/O_P	$n_y(S)$[b] g_{rms} I/ O_T/O_P
1	.031/.038/.042	.072/.095/.093
2	.122/.133/.133	/.094/.093
3	.061/.067/.069	/.096/.094
4	.153/.166/.166	/.097/.095
5	.091/.098/.101	/.097/.095
6	.122/.133/.134	/.097/.096
7	.061/.068/.070	/.098/.097
8	.153/.168/.169	/.097/.096
9	.091/.101/.102	/.097/.096
10	.031/.034/.038	/.097/.096
11	.031/.013/.021	.014/.022/.023
12	.091/.056/.060	/.020/.022
13	.153/.101/.105	/.020/.022
14	.061/.043/.046	/.020/.023
15	.122/.081/.085	/.021/.023
16	.091/.065/.068	/.022/.024
17	.153/.106/.110	/.020/.023
18	.061/.041/.044	/.021/.023
19	.122/.083/.086	/.021/.023
20	.031/.021/.026	/.020/.022

[a] Frequency = 0.3 hz.

[b] Frequency = 0.5 hz.

Table 18 -Concluded

(b) Passenger Response Data

Seat	1	2	3	4	5	6	7	8	9	10		
Subject	28	4	19	7	14	8	9	15	3	12		
Segment											Mean	Std. Dev.
1	5	5	2	3	2	3	6	5	5	4	4.00	1.41
2	5	6	3	5	3	4	6	5	6	4	4.70	1.16
3	5	6	3	5	3	3	6	4	5	4	4.40	1.17
4	5	7	4	6	4	5	6	5	6	4	5.20	1.03
5	5	6	3	5	4	4	6	4	6	4	4.70	1.06
6	5	6	3	5	5	4	5	4	6	3	4.60	1.07
7	5	6	3	5	5	4	5	5	6	4	4.80	0.92
8	5	7	5	5	5	5	6	5	6	3	5.20	1.03
9	5	7	4	5	6	4	5	5	5	3	4.90	1.10
10	5	7	5	4	6	4	5	4	6	4	5.00	1.05
11	4	3	2	2	4	3	4	3	3	2	3.00	0.82
12	4	3	2	2	4	3	4	3	4	2	3.10	0.88
13	5	4	2	2	4	4	5	4	4	3	3.70	1.06
14	5	4	1	3	4	2	5	3	4	2	3.30	1.34
15	5	5	2	3	3	3	5	3	4	2	3.50	1.18
16	5	4	2	2	3	4	5	2	4	2	3.30	1.25
17	5	5	2	4	4	5	5	3	5	3	4.10	1.10
18	5	3	3	3	3	4	4	3	4	2	3.40	0.84
19	5	4	3	4	3	3	4	3	4	2	3.50	0.85
20	4	4	3	3	2	3	4	3	3	2	3.10	0.74
Mean	4.85	5.10	2.85	3.80	3.85	3.70	5.05	3.80	4.80	2.95	4.08	
Std. Dev.	0.37	1.41	1.04	1.28	1.14	0.80	0.76	0.95	1.06	0.89		1.26

Table 19 - Data From UVa Flight 16

(a) Aircraft Motion Data

TIFS Flight 357 September 16, 1974

Segment	$n_z(R)$ g_{rms} I/ O_T/O_p
1	.064/.044/ 0
2	.128/.099/ 0
3	.032/.023/.027
4	.096/.065/.067
5	.160/.118/ 0
6	.064/.047/ 0
7	.096/.068/.071
8	.160/.127/.127
9	.032/.025/.028
10	.128/.095/.100
11	.160/.125/.124
12	.040/.032/.035
13	.200/.148/.151
14	.120/.087/.089
15	.080/.060/.062
16	.200/.143/.142
17	.120/.090/.092
18	.040/.048/.050
19	.160/.116/.115
20	.080/.066/.068

Table 19 -Concluded

(b) Passenger Response Data

Seat	1	2	3	4	5	6	7	8	9	10		
Subject	28	12	8	14	15	19	7	4	9	3		
Segment											Mean	Std. Dev.
1	2	2	2	1	2	2	2	2	3	2	2.00	0.47
2	3	3	3	2	2	3	5	3	4	3	3.10	0.88
3	2	2	2	2	2	2	3	2	3	2	2.20	0.42
4	2	3	2	2	2	2	2	2	4	2	2.30	0.67
5	4	3	3	3	3	2	5	4	5	3	3.50	0.97
6	3	2	2	3	2	2	2	2	3	2	2.30	0.48
7	2	2	2	2	2	1	4	2	4	3	2.40	0.97
8	2	4	3	3	3	5	5	4	6	4	3.90	1.20
9	2	2	2	3	2	2	5	2	3	2	2.50	0.97
10	3	3	3	2	2	4	5	3	5	3	3.30	1.06
11	3	3	3	3	3	5	6	5	6	4	4.10	1.29
12	3	4	3	2	2	4	5	2	4	2	3.10	1.10
13	5	4	4	3	4	3	6	6	6	4	4.50	1.18
14	4	3	3	4	3	2	5	4	5	3	3.60	0.97
15	4	3	3	3	2	2	5	2	4	2	3.00	1.05
16	5	3	4	5	4	2	6	5	6	4	4.40	1.26
17	5	3	3	4	3	2	6	4	4	3	3.70	1.16
18	4	2	3	4	2	2	5	2	4	2	3.00	1.15
19	5	2	3	5	2	5	5	3	5	4	3.90	1.29
20	4	3	3	5	2	3	5	2	3	3	3.30	1.06
Mean	3.35	2.80	2.80	3.05	2.45	2.75	4.60	3.05	4.35	2.85	3.21	
Std. Dev.	1.14	0.70	0.62	1.15	0.69	1.21	1.31	1.28	1.03	0.81		1.21

Table 20 - Data From UVa Flight 17

(a) Aircraft Motion Data

TIFS Flight 358 September 16, 1974

Segment	p(R) $(deg/sec)_{rms}$ I/	p(R) O_T/O_P	r(R) $(deg/sec)_{rms}$ I/	r(R) O_T/O_P
1	0/	/0.85	0.60/	/.029
2	/	/0.24	1.80/	/0.59
3	/	/ 0	3.00/	/ 0
4	/	/0.20	0.72/	/0.31
5	/	/0.38	1.44/	/0.55
6	/	/0.16	0.72/	/0.22
7	/	/0.23	1.80/	/0.60
8	/	/0.89	0.36/	/0.20
9	/	/0.62	1.44/	/0.42
10	/	/0.67	1.08/	/0.38
11	3.60/	/1.05	0/	/0.94
12	6.00/	/2.21	/	/0.15
13	1.20/	/0.47	/	/0.10
14	4.80/	/1.58	/	/0.17
15	2.40/	/0.87	/	/0.11
16	6.00/	/2.18	/	/0.45
17	3.60/	/1.47	/	/0.13
18	4.80/	/2.02	/	/0.17
19	2.40/	/1.35	/	/0.59
20	1.20/	/0.96	/	/0.26

(a) $n_z \approx .040\ g_{rms}$ $n_y \approx .027\ g_{rms}$

Table 20 -Concluded

(b) Passenger Response Data

Seat	1	2	3	4	5	6	7	8	9	10		
Subject	14	15	20	34	8	33	32	19	7	31		
Segment											Mean	Std. Dev.
1	2	2	2	5	2	2	2	1	2	4	2.40	1.17
2	2	2	2	3	2	2	4	2	2	5	2.60	1.07
3	-	-	-	-	-	-	-	-	-	-	-	-
4	2	3	1	3	2	2	2	2	3	4	2.40	0.84
5	2	2	2	3	2	2	2	2	3	4	2.40	0.70
6	2	3	1	3	2	2	2	2	3	3	2.30	0.67
7	2	2	-	3	2	2	2	2	3	4	2.44	0.73
8	2	3	-	3	2	1	2	3	2	2	2.22	0.67
9	2	3	-	3	2	2	2	2	4	2	2.44	0.73
10	3	3	-	3	3	2	4	2	3	2	2.78	0.67
11	3	3	2	4	3	1	4	2	2	2	2.60	0.97
12	4	3	3	3	3	4	5	2	3	4	3.40	0.84
13	4	3	3	5	3	2	3	3	2	3	3.10	0.88
14	4	4	2	5	3	3	3	2	3	2	3.10	0.99
15	4	3	2	4	3	2	3	2	4	3	3.00	0.82
16	3	5	3	5	4	3	4	2	4	5	3.80	1.03
17	4	4	4	4	3	1	2	2	3	2	2.90	1.10
18	4	4	3	3	3	3	3	2	2	3	3.00	0.67
19	4	3	2	3	2	3	2	3	3	2	2.70	0.67
20	4	4	2	3	2	2	3	2	3	2	2.70	0.82
Mean	3.00	3.11	2.27	3.58	2.53	2.16	2.84	2.11	2.84	3.05	2.76	
Std. Dev.	0.94	0.81	0.80	0.84	0.61	0.76	0.96	0.46	0.69	1.08		0.91

Table 21 - Data From UVa Flight 18

(a) Aircraft Motion Data

TIFS Flight 359 September 16, 1974

Segment	n_z(R) g_{rms} $I^{(a)}/\ O_T\ /O_P$	n_y(R) g_{rms} $I/\ O_T\ /O_P$
1	.080/.062/.061	.034/.025/.025
2	/.064/.065	.067/.048/.047
3	/.063/.058	.017/.013/.014
4	/.061/.059	.050/.041/.042
5	/.064/.063	.084/.068/.071
6	/.066/.064	.034/.025/.026
7	/.067/.065	.050/.034/.036
8	/.065/.062	.084/.065/.065
9	/.060/.062	.017/.017/.017
10	/.069/.067	.067/.052/.050
11	.040/.037/.037	.067/.045/.045
12	/.029/.031	.017/.013/.016
13	/.034/.036	.084/.059/.060
14	/.039/.041	.050/.041/.041
15	/.037/.037	.034/.031/.031
16	/.033/.034	.084/.067/.066
17	/.034/.035	.050/.042/.041
18	/.036/.037	.017/.013/.016
19	/.034/.037	.067/.051/.051
20	/. /.046	.034/. /.021

Table 21 -Concluded

(b) Passenger Response Data

Seat	1	2	3	4	5	6	7	8	9	10		
Subject	19	7	31	33	15	20	8	14	32	34		
Segment											Mean	Std. Dev.
1	2	3	4	2	3	3	3	2	3	3	2.80	0.63
2	3	4	4	3	4	5	3	3	5	6	4.00	1.05
3	2	4	3	3	3	3	3	3	5	5	3.40	0.97
4	3	4	3	4	4	4	4	3	5	4	3.80	0.63
5	5	5	6	5	4	5	5	3	7	7	5.20	1.23
6	4	5	3	4	3	4	4	3	6	5	4.10	0.99
7	5	5	4	3	3	5	4	4	5	6	4.40	0.97
8	4	6	5	5	4	5	5	4	7	5	5.00	0.94
9	3	5	4	4	3	3	4	5	6	7	4.40	1.35
10	5	6	3	4	3	3	5	5	6	6	4.60	1.26
11	4	6	4	4	4	4	5	4	6	7	4.80	1.14
12	3	5	2	2	3	2	4	4	4	6	3.50	1.35
13	5	6	5	4	4	4	4	5	7	7	5.10	1.20
14	4	4	4	4	3	3	5	4	5	6	4.20	0.92
15	4	5	4	3	3	3	4	4	4	6	4.00	0.94
16	5	5	5	4	4	4	4	4	7	7	4.90	1.20
17	4	4	4	3	3	-	4	4	6	6	4.22	1.09
18	4	3	2	2	3	-	4	4	4	6	3.56	1.24
19	5	4	5	4	4	-	5	4	6	6	4.78	0.83
20	4	4	4	4	3	-	4	4	7	7	4.56	1.42
Mean	3.90	4.65	3.90	3.55	3.40	3.75	4.15	3.80	5.55	5.90	4.27	
Std. Dev.	0.97	0.93	1.02	0.89	0.50	0.93	0.67	0.77	1.19	1.07		1.21

Table 22 - Hampton Institute Passenger Subject Characteristics

Subject Number	Age	Sex	Number of Previous Flights
1	51	F	10-25
2	55	M	1-3
3	24	M	1-3
4	20	M	10-25
5	34	F	10-25
6	52	F	1-3
7	23	M	10-25
8	34	M	10-25
9	37	F	1-3
10	26	F	0
11	24	M	10-25
12	18	F	0
13	63	F	26-49
14	29	F	1-3
15	43	M	10-25
16	31	F	0
17	24	F	50+
18	53	M	26-49
19	19	M	4-9
20	34	F	1-3
21	21	F	0
22	47	M	50+
23	35	F	10-25
24	52	F	1-3
25	20	F	10-25
26	21	F	10-25
27	22	F	1-3
28	34	M	50+
29	51	M	4-9
30	47	F	4-9
31	52	M	1-3
32	21	F	10-25
33	20	F	1-3
34	24	F	10-25
35	18	F	0
36	21	M	10-25
37	34	M	10-25
38	45	M	50+
39	34	M	26-49
40	29	F	10-25
41	21	F	4-9
42	20	M	4-9
43	21	M	10-25
44	21	F	10-25
45	66	M	50+

Table 22 - Hampton Institute Passenger Subject Characteristics (Concluded)

Subject Number	Age	Sex	Number of Previous Flights
46	20	F	10-25
47	22	F	1-3
48	24	M	1-3
49	26	F	10-25
50	31	M	50+
51	55	M	50+
52	53	M	26-49
53	*	*	*
54	21	F	1-3
55	42	F	4-9
56	21	M	4-9
57	30	F	26-49
58	32	F	4-9
59	32	M	26-49
60	29	M	26-49
61	51	M	26-49
62	20	F	10-25
63	62	M	10-25
64	35	M	50+
65	60	F	26-49
66	65	F	0
67	60	F	26-49
68	62	F	0
69	23	M	10-25
70	29	M	0
71	23	M	10-25
72	37	M	10-25
73	49	M	26-49
74	24	F	0
75	31	M	50+
76	57	F	50+
77	27	M	4-9
78	34	F	1-3
79	39	M	10-25
80	26	M	0
81	55	F	1-3
82	30	F	1-3
83	53	M	4-9

*Did not participate.

Table 23 - Data From Hampton Institute Flight 1

(a) Aircraft Motion Data

TIFS Flight 329 August 13, 1974

Segment	$n_z(R)$ g_{rms} I / O_T	$n_y(R)$ g_{rms} I / O_T	q(R) $(deg/sec)_{rms}$ I / O_T	p(R) $(deg/sec)_{rms}$ I / O_T	r(R) $(deg/sec)_{rms}$ I / O_T
1	.002/.007	.003/.002	0.02/0.05	0.07/0.09	0.02/0.02
2	.006/.012	.002/.022	0.03/0.10	0.05/0.85	0.02/0.23
3	.006/.014	.004/.004	0.02/0.09	0.13/0.18	0.05/0.09
4	.004/.052	.020/.025	0.04/0.28	0.82/1.27	0.04/0.33
5	.003/.026	.022/.018	0.23/0.15	0.55/0.48	0.19/0.16
6	.006/.009	.033/.008	0.27/0.09	1.29/0.72	0.31/0.04
7	.015/.008	.030/.006	0.15/0.05	1.64/0.57	0.30/0.21
8	.013/.017	.030/.025	0.14/0.14	1.59/1.12	0.24/0.17
9	.126/.071	.025/.017	0.32/0.24	1.29/1.01	0.20/0.28
10	.019/.009	.004/.005	0.05/0.06	0.14/0.15	0.02/0.02
11	.060/.041	.014/.010	0.15/0.13	1.12/0.92	0.14/0.14
12	.227/.103	.093/.046	0.55/0.40	3.41/1.73	0.64/0.66
13	.016/.010	.009/.007	0.06/0.07	0.55/0.45	0.08/0.11
14	.062/.040	.014/.009	0.29/0.24	2.66/1.35	0.40/0.33
15	.106/.042	.055/.023	0.70/0.30	4.33/1.69	0.74/0.39
16	.009/.007	.006/.005	0.03/0.04	0.26/0.16	0.07/0.03
17	.165/.116	.072/.086	0.31/0.36	2.69/2·12	0.69/0.72
18	.034/.015	.009/.005	0.10/0.07	0.55/0.30	0.07/0.07
19	.101/.046	.009/.007	0.27/0.22	0.72/0.53	0.29/0.14
20	.126/.071	.025/.018	0.32/0.25	1.29/0.94	0.20/0.27

Table 23 -Concluded

(b) Passenger Response Data

Seat	1	2	3	4	5	6	7	8	9	10		
Subject	6	8	1	3	9	2	10	7	-	5		
Segment											Mean	Std. Dev.
1	2	3	1	1	2	2	3	2	-	3	2.11	0.78
2	2	5	2	2	3	2	5	3	-	2	2.89	1.27
3	2	2	1	1	2	2	4	2	-	2	2.00	0.87
4	3	6	3	4	5	4	7	3	-	3	4.22	1.48
5	2	6	3	3	6	3	6	3	-	4	4.00	1.58
6	2	3	1	1	4	2	1	2	-	2	2.00	1.00
7	1	3	1	1	4	2	4	2	-	2	2.22	1.20
8	2	5	2	2	5	3	7	3	-	4	3.67	1.73
9	2	6	2	5	6	4	7	3	-	3	4.22	1.86
10	2	4	1	1	2	1	3	2	-	2	2.00	1.00
11	3	4	1	3	5	3	6	2	-	3	3.33	1.50
12	4	6	3	6	7	5	7	4	-	5	5.22	1.39
13	2	4	1	1	2	1	4	2	-	3	2.22	1.20
14	2	4	2	1	4	2	5	2	-	2	2.67	1.32
15	3	5	3	3	6	3	7	3	-	4	4.11	1.54
16	2	2	1	1	4	1	2	2	-	2	1.89	0.93
17	4	6	3	5	7	5	7	3	-	6	5.11	1.54
18	2	4	1	1	3	2	1	2	-	2	2.00	1.00
19	2	4	1	1	2	1	4	2	-	3	2.22	1.20
20	2	5	2	4	5	3	6	3	-	4	3.78	1.39
Mean	2.30	4.35	1.75	2.35	4.20	2.55	4.80	2.50	-	3.05	3.09	
Std. Dev.	0.73	1.31	0.85	1.66	1.70	1.23	2.04	0.61	-	1.15		1.66

Table 24 - Data From Hampton Institute Flight 2

(a) Aircraft Motion Data

TIFS Flight 335 August 15, 1974

Segment	$n_z(R)$ g_{rms} I / O_T	$n_y(R)$ g_{rms} I / O_T	q(R) $(deg/sec)_{rms}$ I / O_T	p(R) $(deg/sec)_{rms}$ I / O_T	r(R) $(deg/sec)_{rms}$ I / O_T
1	.126/.073	0 /.002	0 /0.10	0 /0.17	0 /0.02
2	.019/.007	0 /.005	0 /0.03	0 /0.08	0 /0.03
3	.227/.103	0 /.002	0 /0.13	0 /0.12	0 /0.03
4	.060/.038	0 /.003	0 /0.05	0 /0.09	0 /0.02
5	.126/.069	.025/.020	0 /0.10	0 /1.20	0 /0.41
6	.019/.007	.004/.004	0 /0.03	0 /0.22	0 /0.08
7	.227/.105	.093/.045	0 /0.13	0 /0.26	0 /0.13
8	.060/.039	.014/.009	0 /0.05	0 /0.12	0 /0.04
9	.126/.076	.025/.018	0.32/0.25	1.29/1.00	0.20/0.31
10	.019/.012	.004/.013	0.05/0.09	0.14/0.74	0.02/0.15
11	.060/.037	.014/.008	0.15/0.14	1.12/0.85	0.14/0.15
12	.227/.082	.093/.029	0.55/0.33	3.41/1.46	0.64/0.45
13	.016/.010	.009/.007	0.06/0.05	0.55/0.40	0.08/0.13
14	.062/.040	.014/.009	0.29/0.27	2.66/1.32	0.40/0.32
15	.106/.044	.055/.023	0.70/0.30	4.33/1.62	0.74/0.42
16	.009/.021	.006/.009	0.03/0.06	0.26/0.50	0.07/0.11
17	.165/.112	.072/.041	0.31/0.34	2.69/2.15	0.69/1.00
18	.034/.017	.009/.007	0.10/0.57	0.55/0.41	0.07/0.08
19	.101/.048	.009/.007	0.27/0.20	0.72/0.50	0.29/0.12
20	.126/.074	.025/.017	0.32/0.25	1.29/0.89	0.20/0.30

Table 24 -Concluded

(b) Passenger Response Data

Seat	1	2	3	4	5	6	7	8	9	10		
Subject	18	13	17	20	16	15	11	12	21	14		
Segment											Mean	Std. Dev.
1	2	2	2	2	2	2	6	3	4	2	2.70	1.34
2	1	2	1	1	1	1	1	2	2	2	1.40	0.52
3	4	2	3	2	3	3	5	1	5	5	3.30	1.42
4	1	2	1	1	1	1	2	2	2	3	1.60	0.70
5	4	3	3	2	2	4	5	4	6	5	3.80	1.32
6	1	5	1	1	1	1	1	2	1	2	1.60	1.26
7	5	7	5	2	5	7	7	7	7	7	5.90	1.66
8	2	6	1	1	2	2	2	2	2	5	2.50	1.65
9	5	2	2	2	4	5	7	4	7	5	4.30	1.89
10	2	2	1	1	3	2	4	2	2	2	2.10	0.88
11	1	2	1	1	2	2	5	4	3	4	2.50	1.43
12	6	7	5	3	5	6	7	6	7	6	5.80	1.23
13	1	2	1	1	2	1	2	4	2	4	2.00	1.15
14	2	2	1	1	2	1	4	4	5	2	2.40	1.43
15	5	6	3	4	4	5	7	5	7	5	5.10	1.29
16	2	2	1	1	1	1	2	4	2	3	1.90	0.99
17	5	7	5	3	4	6	7	6	7	7	5.70	1.42
18	1	2	1	1	2	2	1	4	4	3	2.10	1.20
19	1	2	1	1	2	1	1	1	3	2	1.50	0.71
20	4	6	2	2	4	4	5	3	5	3	3.80	1.32
Mean	2.75	3.55	2.05	1.65	2.60	2.85	4.05	3.50	4.15	3.85	3.10	
Std. Dev.	1.77	2.11	1.47	0.88	1.31	2.01	2.35	1.67	2.13	1.69		1.93

Table 25 - Data From Hampton Institute Flight 3

(a) Aircraft Motion Data

TIFS Flight 340 September 10, 1974

Segment	$n_z(R)$ g_{rms} I / O_T	$n_y(R)$ g_{rms} I / O_T	$q(R)$ $(deg/sec)_{rms}$ I / O_T	$p(R)$ $(deg/sec)_{rms}$ I / O_T	$r(R)$ $(deg/sec)_{rms}$ I / O_T
1	.003/.006	.003/.002	0.02/0.04	0.07/0.07	0.02/0.02
2	.008/.015	.002/.024	0.03/0.10	0.05/0.85	0.02/0.20
3	.007/.014	.004/.002	0.02/0.11	0.13/0.08	0.05/0.02
4	.005/.014	.022/.019	0.04/0.16	0.82/0.89	0.04/0.20
5	.004/0.13	.024/.009	0.23/0.14	0.55/0.29	0.19/0.07
6	.007/.006	.037/.009	0.27/0.05	1.29/0.65	0.31/0.05
7	.019/.014	.033/.003	0.15/0.10	1.64/0.13	0.30/0.03
8	.016/.018	.033/.027	0.14/0.11	1.59/1.03	0.24/0.11
9	.157/.096	.028/.020	0.32/0.27	1.29/0.93	0.20/0.28
10	.024/.007	.004/.003	0.05/0.03	0.14/0.06	0.02/0.02
11	.075/.050	.015/.010	0.15/0.15	1.11/0.87	0.14/0.14
12	.248/.090	.103/.028	0.55/0.30	3.41/1.09	0.64/0.33
13	.020/.009	.010/.005	0.06/0.05	0.55/0.20	0.08/0.06
14	.077/.052	.016/.009	0.29/0.24	2.66/1.33	0.40/0.32
15	.132/.058	.061/.027	0.70/0.30	4.33/1.68	0.75/0.38
16	.011/.012	.007/.002	0.03/0.09	0.26/0.10	0.07/0.03
17	.206/.130	.080/.047	0.31/0.26	2.69/1.26	0.69/0.65
18	.042/.019	.010/.006	0.10/0.06	0.55/0.29	0.07/0.07
19	.126/.061	.010/.008	0.27/0.27	0.72/0.52	0.29/0.13
20	.157/.103	.028/.022	0.32/0.32	1.29/0.94	0.20/0.28

Table 25 -Concluded

(b) Passenger Response Data

Seat	1	2	3	4	5	6	7	8	9	10		
Subject	30	25	27	28	31	23	22	24	29	26		
Segment											Mean	Std. Dev.
1	1	1	2	2	1	1	2	1	4	1	1.60	0.97
2	3	4	6	3	2	5	5	4	3	1	3.60	1.51
3	2	2	1	1	2	2	2	3	3	1	1.90	0.74
4	2	5	3	3	2	6	4	5	4	1	3.50	1.58
5	3	6	5	3	3	7	5	4	4	1	4.10	1.73
6	1	1	2	1	1	2	1	2	3	1	1.50	0.71
7	1	1	2	1	1	1	2	2	2	1	1.40	0.52
8	2	6	3	3	2	6	5	4	4	1	3.60	1.71
9	2	7	7	3	5	7	6	5	5	2	4.90	1.97
10	1	1	1	1	1	2	2	1	2	1	1.30	0.48
11	1	4	6	2	2	6	3	3	4	1	3.20	1.81
12	2	6	5	4	5	7	5	5	4	1	4.40	1.78
13	1	1	7	1	1	1	2	1	3	1	1.90	1.91
14	1	1	1	2	2	4	3	3	4	1	2.20	1.23
15	2	7	5	3	5	7	6	6	4	3	4.80	1.75
16	1	1	1	1	1	1	1	1	2	1	1.10	0.32
17	4	7	7	5	6	7	7	7	5	3	5.80	1.48
18	2	1	1	1	1	1	2	1	3	1	1.40	0.70
19	1	2	1	1	1	2	2	1	3	1	1.50	0.71
20	2	2	7	3	3	6	5	4	4	1	3.70	1.89
Mean	1.75	3.30	3.65	2.20	2.35	4.05	3.50	3.15	3.50	1.25	2.87	
Std. Dev.	0.85	2.45	2.43	1.20	1.63	2.54	1.85	1.87	0.89	0.64		1.94

Table 26 - Data From Hampton Institute Flight 4

(a) Aircraft Motion Data

TIFS Flight 341 September 10, 1974

Segment	$n_z(R)$ g_{rms} I / O_T	$n_y(R)$ g_{rms} I / O_T	q(R) $(deg/sec)_{rms}$ I / O_T	p(R) $(deg/sec)_{rms}$ I / O_T	r(R) $(deg/sec)_{rms}$ I / O_T
1	.157/.105	0 /.002	0 /0.12	0 /0.10	0 /0.03
2	.024/.006	0 /.002	0 /0.33	0 /0.06	0 /0.02
3	.284/.115	0 /.003	0 /0.14	0 /0.16	0 /0.04
4	.075/.048	0 /.029	0 /0.07	0 /0.09	0 /0.02
5	.157/.100	.028/.022	0 /0.13	0 /0.20	0 /0.08
6	.024/.005	.004/.003	0 /0.03	0 /0.07	0 /0.02
7	.284/.120	.103/.046	0 /0.14	0 /0.76	0 /0.13
8	.075/.053	.015/.011	0 /0.06	0 /0.09	0 /0.03
9	.157/.087	.028/.020	0.32/0.27	1.29/0.85	0.20/0.29
10	.024/.004	.004/.002	0.05/0.06	0.14/0.10	0.02/0.02
11	.075/.048	.015/.008	0.15/0.14	1.12/0.79	0.14/0.13
12	.284/.109	.103/.030	0.55/0.33	3.41/1.38	0.64/0.38
13	.020/.009	.010/.005	0.06/0.05	0.55/0.24	0.08/0.06
14	.077/.050	.016/.008	0.29/0.23	2.66/1.27	0.40/0.32
15	.132/.057	.061/.026	0.70/0.28	4.33/1.54	0.74/0.39
16	.011/.006	.007/.004	0.03/0.05	0.26/0.23	0.07/0.06
17	.206/.119	.080/.046	0.31/0.26	2.69/1.19	0.69/0.65
18	.042/.015	.010/.005	0.10/0.07	0.55/0.30	0.07/0.05
19	.126/.061	.010/.008	0.27/0.20	0.72/0.46	0.29/0.13
20	.157/.086	.028/.021	0.32/0.27	1.29/0.85	0.20/0.28

Table 26-Concluded

(b) Passenger Response Data

Seat	1	2	3	4	5	6	7	8	9	10		
Subject	24	25	27	28	22	23	31	30	29	26		
Segment											Mean	Std. Dev.
1	4	2	5	3	4	4	2	1	4	2	3.10	1.29
2	1	1	1	1	2	1	1	1	2	1	1.20	0.42
3	5	3	7	3	5	5	4	1	3	2	3.80	1.75
4	2	2	2	1	3	4	1	1	2	1	1.90	0.99
5	5	2	1	3	4	6	2	2	4	2	3.10	1.60
6	1	1	7	1	2	1	1	1	2	1	1.80	1.87
7	5	2	3	4	6	6	5	2	4	2	3.90	1.60
8	3	1	2	3	2	2	2	1	2	1	1.90	0.74
9	5	4	5	3	5	5	5	2	4	2	4.00	1.25
10	1	1	1	1	2	1	1	1	2	1	1.20	0.42
11	3	1	1	1	2	4	2	1	2	1	1.80	1.03
12	5	6	5	4	6	6	5	2	5	3	4.70	1.34
13	2	2	1	1	2	1	1	1	2	1	1.40	0.52
14	4	4	2	3	4	4	2	2	3	1	2.90	1.10
15	6	6	2	4	6	6	3	2	5	2	4.20	1.81
16	2	1	2	1	2	1	1	1	2	1	1.40	0.52
17	6	7	7	5	6	7	6	4	5	2	5.50	1.58
18	2	1	2	1	2	2	1	1	2	1	1.50	0.53
19	2	2	2	1	2	2	1	1	2	1	1.60	0.52
20	5	6	1	3	5	4	3	2	4	2	3.50	1.58
Mean	3.45	2.75	2.95	2.35	3.60	3.60	2.45	1.50	3.05	1.50	2.72	
Std. Dev.	1.73	2.02	2.19	1.35	1.67	2.06	1.67	0.76	1.19	0.61		1.74

Table 27- Data From Hampton Institute Flight 5

(a) Aircraft Motion Data

TIFS Flight 343 September 11, 1974

Segment	$n_z(R)$ g_{rms} I / O_T	$n_y(R)$ g_{rms} I / O_T	$q(R)$ $(deg/sec)_{rms}$ I / O_T	$p(R)$ $(deg/sec)_{rms}$ I / O_T	$r(R)$ $(deg/sec)_{rms}$ I / O_T
1	.003/.008	.003/.003	0.02/0.04	0.07/0.18	0.02/0.03
2	.008/.016	.002/.025	0.03/0.09	0.05/0.82	0.02/0.22
3	.007/.005	.004/.003	0.02/0.04	0.13/0.07	0.05/0.02
4	.005/.018	.022/.018	0.44/0.25	0.82/0.88	0.04/0.22
5	.004/.011	.024/.011	0.23/0.14	0.55/0.40	0.19/0.15
6	.007/.007	.037/.007	0.27/0.05	1.29/0.63	0.31/0.05
7	.019/.008	.033/.003	0.15/0.03	1.64/0.11	0.30/0.03
8	.016/.018	.033/.028	0.14/0.12	1.59/1.13	0.24/0.15
9	.157/.096	.028/.020	0.32/0.27	1.29/0.93	0.20/0.29
10	.024/.006	.004/.003	0.05/0.03	0.14/0.22	0.02/0.04
11	.075/.052	.015/.009	0.15/0.15	1.12/0.86	0.14/0.14
12	.284/.113	.103/.039	0.55/0.36	3.41/1.35	0.64/0.51
13	.020/.009	.010/.009	0.06/0.09	0.55/0.62	0.08/0.26
14	.077/.053	.016/.009	0.29/0.23	2.66/1.38	0.40/0.33
15	.132/.057	.061/.027	0.70/0.31	4.33/1.69	0.74/0.40
16	.011/.007	.007/.003	0.03/0.39	0.26/0.15	0.07/0.02
17	.206/.132	.080/.047	0.31/0.28	2.69/1.25	0.69/0.65
18	.042/.018	.010/.005	0.10/0.07	0.55/0.28	0.07/0.07
19	.126/.063	.010/.009	0.27/0.21	0.72/0.50	0.29/0.12
20	.157/.100	.028/.022	0.32/0.28	1.29/0.93	0.20/0.29

Table 27 -Concluded

(b) Passenger Response Data

Seat	1	2	3	4	5	6	7	8	9	10		
Subject	40	33	32	34	41	39	35	38	37	36		
Segment											Mean	Std. Dev.
1	1	2	1	2	5	4	3	1	2	2	2.30	1.34
2	2	4	4	5	5	3	5	2	3	2	3.50	1.27
3	2	2	1	3	4	4	3	1	3	1	2.40	1.17
4	4	4	2	4	5	5	5	3	3	3	3.80	1.03
5	5	3	4	3	6	5	4	4	4	4	4.20	0.92
6	2	2	2	2	4	2	2	1	2	1	2.00	0.82
7	2	2	2	1	4	5	2	1	2	1	2.20	1.32
8	4	4	5	4	6	5	4	4	3	4	4.30	0.82
9	6	5	5	7	7	7	3	5	5	5	5.50	1.27
10	1	1	2	1	5	4	1	1	2	1	1.90	1.45
11	2	2	2	4	5	5	2	2	4	3	3.10	1.29
12	6	4	6	7	7	6	6	5	6	6	5.90	0.88
13	2	1	2	1	4	4	2	1	2	2	2.10	1.10
14	3	2	4	5	6	5	3	3	2	2	3.50	1.43
15	7	4	6	5	7	6	4	5	4	5	5.30	1.15
16	2	2	3	1	5	4	1	1	2	2	2.30	1.34
17	7	4	7	7	7	7	6	6	3	5	5.90	1.45
18	1	2	2	1	6	4	1	1	2	2	2.20	1.62
19	2	2	2	3	5	4	1	1	2	2	2.40	1.26
20	5	2	6	4	7	6	4	5	3	3	4.50	1.58
Mean	3.30	2.70	3.40	3.50	5.50	4.75	3.10	2.65	2.95	2.80	3.47	
Std. Dev.	2.03	1.17	1.88	2.06	1.10	1.25	1.62	1.81	1.15	1.54		1.80

Table 28 - Data From Hampton Institute Flight 6

(a) Aircraft Motion Data

TIFS Flight 344 September 11, 1974

Segment	$n_z(R)$ g_{rms} I / 0_T	$n_y(R)$ g_{rms} I / 0_T	q(R) $(deg/sec)_{rms}$ I / 0_T	p(R) $(deg/sec)_{rms}$ I / 0_T	r(R) $(deg/sec)_{rms}$ I / 0_T
1	0 /.005	0 /.007	0 /0.03	0 /0.18	0.74/0.40
2	0 /.005	0 /.002	0 /0.03	0 /0.08	0.07/0.03
3	0 /.006	0 /.003	0 /0.04	1.22/1.13	0 /0.05
4	0 /.006	0 /.003	0 /0.04	2.90/1.61	0 /0.75
5	0 /.006	0 /.006	0 /0.04	4.33/1.51	0.74/0.41
6	0 /.005	0 /.002	0 /0.03	0.26/0.13	0.07/0.03
7	0 /.007	0 /.007	0 /0.04	1.22/1.17	0.33/0.50
8	0 /.008	0 /.005	0 /0.05	2.90/1.64	0.26/0.24
9	.157/.102	.028/.021	0.32/0.27	1.29/0.92	0.20/0.31
10	.024/.006	.004/.002	0.05/0.03	0.14/0.11	0.02/0.02
11	.075/.052	.015/.010	0.15/0.14	1.12/0.86	0.14/0.15
12	.284/.129	.103/.045	0.55/0.37	3.41/1.46	0.64/0.60
13	.020/.012	.010/.009	0.06/0.05	0.55/0.19	0.08/0.08
14	.077/.053	.016/.009	0.29/0.24	2.66/1.31	0.40/0.34
15	.132/.060	.061/.027	0.70/0.30	4.33/1.66	0.74/0.40
16	.011/.006	.007/.003	0.03/0.03	0.26/0.08	0.07/0.02
17	.206/.147	.080/.040	0.31/0.68	2.69/1.24	0.69/0.59
18	.042/.019	.010/.005	0.10/0.05	0.55/0.28	0.07/0.07
19	.126/.065	.010/.009	0.27/0.21	0.72/0.51	0.29/0.15
20	.157/.103	.028/.022	0.32/0.28	1.29/0.93	0.20/0.30

Table 28-Concluded

(b) Passenger Response Data

Seat	1	2	3	4	5	6	7	8	9	10		
Subject	38	41	39	34	33	35	40	32	37	36		
Segment											Mean	Std. Dev.
1	1	4	3	1	2	1	1	2	2	2	1.90	0.99
2	1	3	3	1	2	2	2	2	2	3	2.10	0.74
3	1	4	4	1	1	2	2	4	2	3	2.40	1.26
4	2	5	5	1	2	2	2	2	2	4	2.70	1.42
5	3	5	5	1	2	2	3	5	2	4	3.20	1.48
6	1	4	4	1	2	2	2	1	2	1	2.00	1.15
7	1	5	4	1	2	2	3	5	2	2	2.70	1.49
8	2	4	4	1	2	2	2	5	3	4	2.90	1.29
9	5	6	6	4	3	3	6	7	4	5	4.90	1.37
10	1	4	3	1	2	2	2	2	2	2	2.10	0.88
11	3	5	4	2	2	2	3	5	2	3	3.10	1.20
12	6	7	6	6	4	5	6	7	6	6	5.90	0.88
13	1	5	3	2	2	2	1	2	6	2	2.60	1.65
14	4	6	5	4	2	2	3	2	2	3	3.30	1.42
15	5	7	6	5	4	4	5	7	3	5	5.10	1.29
16	1	5	3	1	2	2	1	7	2	2	2.60	1.96
17	5	7	6	6	5	5	7	7	6	5	5.90	0.88
18	1	5	3	2	4	2	1	2	2	2	2.40	1.26
19	1	5	4	3	2	2	2	2	3	3	2.70	1.16
20	4	7	6	5	5	5	6	6	6	5	5.50	0.85
Mean	2.45	5.15	4.35	2.45	2.60	2.55	3.00	4.10	3.05	3.30	3.30	
Std. Dev.	1.76	1.18	1.18	1.85	1.14	1.19	1.92	2.22	1.61	1.38		1.78

Table 29- Data From Hampton Institute Flight 7

(a) Aircraft Motion Data

TIFS Flight 346 September 12, 1974

Segment	$n_z(R)$ g_{rms} I / O_T	$n_y(R)$ g_{rms} I / O_T	q(R) $(deg/sec)_{rms}$ I / O_T	p(R) $(deg/sec)_{rms}$ I / O_T	r(R) $(deg/sec)_{rms}$ I / O_T
1	.003/.075	.003/.002	0.02/0.04	0.07/0.08	0.02/0.02
2	.008/.016	.002/.025	0.03/0.10	0.05/0.88	0.02/0.22
3	.007/.005	.004/.002	0.02/0.03	0.13/0.07	0.05/0.02
4	.005/.018	.022/.020	0.44/0.23	0.82/0.85	0.04/0.20
5	.004/.023	.024/.017	0.23/0.21	0.55/0.39	0.19/0.15
6	.007/.007	.037/.008	0.27/0.05	1.29/0.61	0.31/0.05
7	.019/.008	.033/.002	0.15/0.04	1.64/0.13	0.30/0.03
8	.016/.019	.033/.027	0.14/0.12	1.59/1.10	0.24/0.15
9	.157/.099	.028/.019	0.32/0.28	1.29/0.92	0.20/0.28
10	.024/.006	.004/.002	0.05/0.03	0.14/0.06	0.02/0.02
11	.075/.051	.015/.010	0.15/0.15	1.12/0.86	0.14/0.13
12	.284/.114	.103/.040	0.55/0.38	3.41/1.39	0.64/0.52
13	.020/.010	.010/.005	0.06/0.06	0.55/0.17	0.08/0.07
14	.077/.052	.016/.009	0.29/0.25	2.66/1.34	0.40/0.33
15	.132/.058	.061/.026	0.70/0.30	4.33/1.69	0.74/0.39
16	.011/.006	.007/.003	0.03/0.04	0.26/0.09	0.07/0.02
17	.206/.147	.080/.039	0.31/0.76	2.69/1.32	0.69/0.61
18	.042/.018	.010/.005	0.10/0.06	0.55/0.28	0.07/0.06
19	.126/.063	.010/.009	0.27/0 21	0.72/0.52	0.29/0.13
20	.157/.097	.028/.021	0.32/0.29	1.29/0.93	0.20/0.30

Table 29 -Concluded

(b) Passenger Response Data

Seat	1	2	3	4	5	6	7	8	9	10		
Subject	43	18	44	48	49	47	45	46	51	50		
Segment											Mean	Std. Dev.
1	2	1	1	2	1	2	4	1	5	2	2.10	1.37
2	3	4	2	3	3	2	4	3	5	5	3.40	1.07
3	3	2	1	1	1	2	2	1	4	2	1.90	0.99
4	5	3	2	3	5	2	4	3	5	5	3.70	1.25
5	5	4	2	4	4	2	4	4	5	4	3.80	1.03
6	1	1	1	1	1	2	4	1	2	2	1.60	0.97
7	2	1	1	2	1	2	3	2	3	2	1.90	0.74
8	5	4	2	3	4	2	3	4	6	5	3.80	1.32
9	6	6	3	4	6	2	5	6	6	6	5.00	1.49
10	1	1	1	1	1	2	4	2	4	2	1.90	1.20
11	4	4	2	1	2	2	2	4	3	4	2.80	1.14
12	7	6	4	5	5	2	5	7	7	6	5.40	1.58
13	1	2	1	1	1	2	4	2	2	2	1.80	0.92
14	2	3	2	2	1	2	4	4	3	2	2.50	0.97
15	6	5	3	5	5	2	5	5	5	5	4.60	1.17
16	1	1	1	1	1	2	1	2	2	2	1.40	0.52
17	4	6	2	2	5	2	6	2	6	2	3.70	1.89
18	2	2	1	1	1	2	4	2	2	2	1.90	0.88
19	2	3	2	2	1	2	2	3	2	2	2.10	0.57
20	3	5	4	4	3	2	1	4	5	5	3.60	1.35
Mean	3.25	3.20	1.90	2.40	2.60	2.00	3.55	3.10	4.10	3.35	2.95	
Std. Dev.	1.89	1.79	0.97	1.39	1.85	0.00	1.36	1.65	1.62	1.60		1.62

Table 30 - Data From Hampton Institute Flight 8

(A) Aircraft Motion Data

TIFS Flight 347 September 12, 1974

Segment	$n_z(R)$ g_{rms} I / O_T	$n_y(R)$ g_{rms} I / O_T	q(R) $(deg/sec)_{rms}$ I / O_T	p(R) $(deg/sec)_{rms}$ I / O_T	r(R) $(deg/sec)_{rms}$ I / O_T
1	.284/.105	.103/.041	0 /0.18	0 /0.34	0.64/0.56
2	.024/.008	.004/.003	0 /0.05	0 /0.10	0.02/0.02
3	.075/.050	.015/.010	0 /0.07	0 /0.13	0.14/0.12
4	.157/.098	.028/.021	0 /0.13	0 /0.26	0.20/0.30
5	0 /.007	.034/.022	0 /0.04	2.90/1.48	0.26/0.26
6	0 /.007	.021/.019	0 /0.04	0.92/0.76	0.15/0.22
7	0 /.007	.028/.012	0 /0.06	0.99/0.49	0.15/0.17
8	0 /.006	.016/.009	0 /0.04	2.66/1.29	0.40/0.31
9	.157/.097	.028/.020	0.32/0.28	1.29/0.91	0.20/0.30
10	.024/.006	.004/.003	0.05/0.03	0.14/0.14	0.02/0.02
11	.075/.051	.015/.009	0.15/0.15	1.12/0.85	0.14/0.15
12	.284/.113	.103/.039	0.55/0.36	3.41/1.34	0.64/0.55
13	.020/.010	.010/.005	0.06/0.06	0.55/0.21	0.08/0.08
14	.078/.052	.016/.009	0.29/0.26	2.66/1.47	0.40/0.37
15	.132/.059	.061/.027	0.70/0.30	4.33/1.65	0.74/0.40
16	.011/.007	.007/.003	0.03/0.03	0.26/0.26	0.07/0.03
17	.206/.092	.080/.032	0.31/0.17	2.69/1.04	0.69/0.47
18	.042/.018	.010/.006	0.10/0.05	0.55/0.31	0.07/0.07
19	.126/.064	.010/.010	0.27/0.22	0.72/0.71	0.29/0.14
20	.157/.101	.028/.022	0.32/0.29	1.29/0.91	0.20/0.30

Table 30 -Concluded

(b) Passenger Response Data

Seat	1	2	3	4	5	6	7	8	9	10		
Subject	45	18	44	48	49	46	43	47	51	50		
Segment											Mean	Std. Dev.
1	6	7	4	5	3	6	5	2	6	5	4.90	1.52
2	4	1	1	1	1	2	1	2	2	2	1.70	0.95
3	4	3	1	1	1	2	2	2	4	2	2.20	1.14
4	5	5	3	2	3	3	5	2	5	5	3.80	1.32
5	4	4	2	2	2	3	5	2	5	4	3.30	1.25
6	4	3	1	2	1	2	3	2	4	4	2.60	1.17
7	3	3	2	2	1	2	2	2	4	3	2.40	0.84
8	3	2	2	2	1	2	4	2	4	2	2.40	0.97
9	6	7	4	2	5	6	5	2	5	5	4.70	1.64
10	4	2	1	2	1	2	1	2	5	2	2.20	1.32
11	4	3	2	2	1	2	2	2	4	3	2.50	0.97
12	5	6	4	4	6	5	6	2	6	5	4.90	1.29
13	4	1	1	1	1	2	1	2	2	2	1.70	0.95
14	4	4	2	2	2	4	4	2	5	2	3.10	1.20
15	4	5	4	4	6	3	7	2	5	5	4.50	1.43
16	3	1	1	1	1	2	1	2	2	2	1.60	0.70
17	6	7	2	2	3	2	7	2	6	2	3.90	2.28
18	4	2	1	1	1	2	1	2	4	2	2.00	1.15
19	4	2	1	1	1	2	2	2	3	2	2.00	0.94
20	5	5	3	2	5	4	4	2	5	4	3.90	1.20
Mean	4.30	3.65	2.10	2.05	2.30	2.90	3.40	2.00	4.30	3.15	3.02	
Std. Dev.	0.92	2.03	1.17	1.10	1.81	1.37	2.06	0.00	1.26	1.31		1.63

Table 31 - Data From Hampton Institute Flight 9

(a) Aircraft Motion Data

TIFS Flight 348 September 12, 1974

Segment	$n_z(R)$ g_{rms} I / O_T	$n_y(R)$ g_{rms} I / O_T	q(R) $(deg/sec)_{rms}$ I / O_T	p(R) $(deg/sec)_{rms}$ I / O_T	r(R) $(deg/sec)_{rms}$ I / O_T
1	.023/.011	.009/.005	0.07/0.07	0.39/0.18	0.07/0.07
2	.173/.104	.034/.021	0.36/0.30	2.90/1.71	0.26/0.29
3	.072/.035	.028/.014	0.08/0.09	0.99/0.46	0.43/0.15
4	.081/.089	.033/.032	0.18/0.31	1.22/1.29	0.33/0.62
5	.057/.051	.021/.018	0.10/0.12	0.92/0.77	0.15/0.25
6	.125/.109	.043/.028	0.22/0.26	1.49/1.37	0.32/0.45
7	.072/.055	.018/.012	0.16/0.14	1.13/0.83	0.22/0.26
8	.004/.009	.007/.004	0.02/0.04	0.14/0.11	0.05/0.05
9	.122/.025	.017/.010	0.46/0.10	1.32/0.61	0.23/0.11
10	.025/.013	.013/.006	0.04/0.06	0.65/0.23	0.14/0.09
11	.153/.075	.059/.031	0.31/0.26	2.03/1.13	0.45/0.50
12	.014/.011	.003/.006	0.05/0.06	0.17/0.18	0.04/0.07
13	.048/.033	.027/.011	0.08/0.09	0.75/0.45	0.16/0.11
14	.106/.053	.040/.025	0.18/0.15	2.23/1.04	0.40/0.33
15	.026/.029	.008/.005	0.06/0.09	0.61/0.46	0.14/0.12
16	.153/.064	.054/.024	0.29/0.17	2.14/0.78	0.39/0.27
17	.020/.008	.004/.003	0.04/0.04	0.16/0.07	0.02/0.03
18	.074/.048	.025/.012	0.18/0.16	1.32/0.53	0.30/0.23
19	.059/.036	.014/.009	0.14/0.10	0.97/0.66	0.24/0.21
20	.039/.030	.010/.014	0.14/0.13	1.10/1.09	0.25/0.22

Table 31 -Concluded

(b) Passenger Response Data

Seat	1	2	3	4	5	6	7	8	9	10		
Subject	62	61	55	60	64	63	58	59	56	57		
Segment											Mean	Std. Dev.
1	1	1	1	4	2	1	1	2	3	1	1.70	1.06
2	2	3	5	5	4	3	2	4	5	5	3.80	1.23
3	1	2	2	4	2	3	1	2	3	3	2.30	0.95
4	2	2	4	5	4	5	2	3	6	3	3.60	1.43
5	1	2	2	4	3	5	1	2	2	3	2.50	1.27
6	3	3	5	5	5	5	4	4	4	3	4.10	0.88
7	1	2	2	3	3	4	1	2	3	4	2.50	1.08
8	1	1	2	2	2	4	1	1	1	2	1.70	0.95
9	1	1	4	2	2	4	1	1	2	2	2.00	1.15
10	1	1	1	4	2	4	1	1	2	1	1.80	1.23
11	3	3	5	5	4	5	5	4	5	4	4.30	0.82
12	1	2	2	4	3	4	1	1	3	2	2.30	1.16
13	1	1	1	4	2	5	1	2	5	1	2.30	1.70
14	2	2	2	5	5	6	2	3	4	3	3.40	1.51
15	1	1	2	4	4	5	1	1	2	2	2.30	1.49
16	2	2	2	5	5	6	3	4	6	5	4.00	1.63
17	1	1	1	4	3	4	1	1	1	1	1.80	1.32
18	2	2	5	5	5	6	4	4	5	6	4.40	1.43
19	1	1	2	5	3	5	1	1	3	3	2.50	1.58
20	1	2	1	5	2	5	1	2	3	1	2.30	1.57
Mean	1.45	1.75	2.55	4.20	3.25	4.45	1.75	2.25	3.40	2.75	2.78	
Std. Dev.	0.69	0.72	1.50	0.95	1.16	1.19	1.25	1.21	1.54	1.48		1.53

Table 32- Data From Hampton Institute Flight 10

(a) Aircraft Motion Data

TIFS Flight 348 September 12, 1974

Segment	$n_z(R)$ g_{rms} I / O_T	$n_y(R)$ g_{rms} I / O_T	q(R) $(deg/sec)_{rms}$ I / O_T	p(R) $(deg/sec)_{rms}$ I / O_T	R(R) $(deg/sec)_{rms}$ I / O_T
1	- / -	- / -	- / -	- / -	- / -
2	- / -	- / -	- / -	- / -	- / -
3	- / -	- / -	- / -	- / -	- / -
4	- / -	- / -	- / -	- / -	- / -
5	- / -	- / -	- / -	- / -	- / -
6	- / -	- / -	- / -	- / -	- / -
7	- / -	- / -	- / -	- / -	- / -
8	- / -	- / -	- / -	- / -	- / -
9	.157/.006	.028/.003	0.32/0.03	1.29/0.07	0.20/0.02
10	.024/.021	.004/.006	0.05/0.09	0.14/0.28	0.02/0.11
11	.075/.067	.015/.017	0.15/0.18	1.12/0.91	0.14/0.23
12	.284/.012	.103/.008	0.55/0.08	3.41/0.32	0.64/0.14
13	.020/.062	.010/.024	0.06/0.19	0.55/1.19	0.08/0.44
14	.077/.051	.016/.018	0.29/0.12	2.66/0.05	0.40/0.16
15	.132/.101	.061/.022	0.70/0.22	4.33/1.28	0.74/0.32
16	.011/.040	.007/.011	0.03/0.14	0.26/0.91	0.07/0.19
17	.206/.008	.080/.008	0.31/0.05	2.69/0.57	0.69/0.23
18	.042/.021	.010/.008	0.10/0.08	0.55/0.54	0.07/0.20
19	.126/.017	.010/.006	0.27/0.04	0.72/0.27	0.29/0.21
20	.157/.008	.028/.007	0.32/0.04	1.29/0.34	0.20/0.07

Table 32 -Concluded

(b) Passenger Response Data

Seat	1	2	3	4	5	6	7	8	9	10		
Subject	64	56	55	58	63	59	60	62	61	57		
Segment											Mean	Std. Dev.
1	-	-	-	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-	-	-	-	-
7	-	-	-	-	-	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-	-	-	-	-	-
9	5	6	5	4	5	4	5	2	3	3	4.20	1.23
10	5	3	3	1	4	1	2	1	1	1	2.20	1.48
11	5	4	4	1	4	3	2	1	2	3	2.90	1.37
12	7	7	5	5	5	5	5	2	3	6	5.00	1.56
13	5	3	1	1	3	1	1	1	1	-	1.89	1.45
14	6	5	2	1	4	3	2	1	2	-	2.89	1.76
15	7	7	4	4	5	4	6	2	3	2	4.40	1.84
16	5	3	2	1	4	1	2	1	1	1	2.10	1.45
17	7	6	5	5	5	6	6	1	4	5	5.00	1.63
18	5	4	2	1	4	1	2	1	1	2	2.30	1.49
19	6	3	1	1	3	1	2	1	1	1	2.00	1.63
20	7	7	4	4	4	4	5	2	3	2	4.20	1.75
Mean	5.83	4.83	3.17	2.42	4.17	2.83	3.33	1.33	2.08	2.60	3.27	
Std. Dev.	0.94	1.70	1.53	1.78	0.72	1.80	1.87	0.49	1.08	1.71		1.89

Table 33- Data From Hampton Institute Flight 11

(a) Aircraft Motion Data

TIFS Flight 361 September 17, 1974

Segment	$n_z(R)$ g_{rms} I / O_T	$n_y(R)$ g_{rms} I / O_T	q(R) $(deg/sec)_{rms}$ I / O_T	p(R) $(deg/sec)_{rms}$ I / O_T	r(R) $(deg/sec)_{rms}$ I / O_T
1	.003/.007	.003/.002	0.02/0.04	0.07/0.10	0.02/0.02
2	.008/.020	.002/.024	0.03/0.13	0.05/0.83	0.02/0.21
3	.007/.007	.004/.003	0.02/0.05	0.13/0.17	0.05/0.02
4	.005/.019	.022/.021	0.44/0.27	0.82/0.89	0.04/0.21
5	.004/.013	.024/.018	0.23/0.16	0.55/0.43	0.19/0.14
6	.007/.012	.037/.008	0.27/0.08	1.29/0.97	0.31/0.20
7	.019/.007	.033/.003	0.15/0.04	1.64/0.13	0.30/0.03
8	.016/.019	.033/.029	0.14/0.11	1.59/1.11	0.24/0.16
9	.157/.097	.028/.022	0.32/0.26	1.29/0.95	0.20/0.29
10	.024/.018	.004/.009	0.05/0.06	0.14/0.20	0.02/0.09
11	.075/.056	.015/.011	0.15/0.15	1.12/0.88	0.14/0.16
12	.284/.116	.103/.041	0.55/0.36	3.41/1.41	0.64/0.54
13	.020/.024	.010/.009	0.06/0.08	0.55/0.36	0.08/0.09
14	.077/.053	.016/.011	0.29/0.25	2.66/1.46	0.40/0.35
15	.132/.059	.061/.028	0.70/0.30	4.33/1.83	0.74/0.41
16	.011/.007	.007/.003	0.03/0.04	0.26/0.11	0.07/0.03
17	.206/.122	.080/.041	0.31/0.21	2.69/1.17	0.69/0.57
18	.042/.015	.010/.007	0.10/0.06	0.55/0.30	0.07/0.07
19	.126/.051	.010/.007	0.27/0.17	0.72/0.48	0.29/0.12
20	.157/.096	.028/.022	0.32/0.26	1.29/0.95	0.20/0.29

Table 33 -Concluded

(b) Passenger Response Data

Seat	1	2	3	4	5	6	7	8	9	10		
Subject	-	68	66	72	70	71	69	67	73	65		
Segment											Mean	Std. Dev.
1	-	5	2	1	4	1	4	2	4	1	2.67	1.58
2	-	3	3	2	5	2	6	4	5	5	3.89	1.45
3	-	3	3	1	3	2	4	3	4	4	3.00	1.00
4	-	4	5	2	5	2	6	4	5	5	4.22	1.39
5	-	2	5	3	5	3	7	5	5	5	4.44	1.51
6	-	2	2	2	3	3	3	3	4	2	2.67	0.71
7	-	2	4	1	2	3	2	4	4	1	2.56	1.24
8	-	6	5	3	6	3	7	4	5	5	4.89	1.36
9	-	3	5	5	6	4	7	5	5	7	5.22	1.30
10	-	2	3	2	4	3	5	3	5	4	3.44	1.13
11	-	3	3	3	5	4	6	4	5	4	4.11	1.05
12	-	3	6	6	6	4	7	4	6	6	5.33	1.32
13	-	2	4	2	3	4	2	3	4	3	3.00	0.87
14	-	3	4	4	4	4	5	4	5	3	4.00	0.71
15	-	3	5	5	6	4	5	3	5	5	4.56	1.01
16	-	2	3	2	2	4	1	4	4	1	2.56	1.24
17	-	3	6	6	7	4	6	3	6	7	5.33	1.58
18	-	3	2	1	2	4	3	4	4	2	2.78	1.09
19	-	2	3	2	5	4	2	3	4	1	2.89	1.27
20	-	2	5	4	6	4	5	4	4	5	4.33	1.12
Mean	-	2.90	3.90	2.85	4.45	3.30	4.65	3.65	4.65	3.80	3.79	
Std. Dev.	-	1.07	1.29	1.63	1.54	0.92	1.93	0.75	0.67	1.96		1.50

Table 34 - Data From Hampton Institute Flight 12

(a) Aircraft Motion Data

TIFS Flight 362 September 17, 1974

Segment	$n_z(R)$ g_{rms} I / O_T	$n_y(R)$ g_{rms} I / O_T	q(R) $(dge/sec)_{rms}$ I / O_T	p(R) $(deg/sec)_{rms}$ I / O_T	r(R) $(deg/sec)_{rms}$ I / O_T
1	.023/.013	.009/.006	0.07/0.07	0.39/0.30	0.07/0.06
2	.173/.112	.034/.023	0.36/0.33	2.90/1.74	0.26/0.27
3	.072/.037	.028/.016	0.08/0.12	0.99/0.46	0.15/0.15
4	.081/.094	.033/.034	0.18/0.31	1.22/1.27	0.33/0.59
5	.057/.055	.021/.022	0.10/0.12	0.92/1.05	0.15/0.25
6	.125/.117	.043/.030	0.22/0.27	1.49/1.54	0.32/0.45
7	.072/.056	.018/.015	0.16/0.15	1.13/0.96	0.22/0.23
8	.004/.026	.007/.004	0.02/0.22	0.14/0.14	0.05/0.06
9	.122/.040	.017/.009	0.46/0.23	1.32/1.08	0.23/0.28
10	.025/.021	.013/.006	0.04/0.16	0.65/0.37	0.14/0.08
11	.153/.087	.059/.038	0.31/0.29	2.03/1.12	0.45/0.48
12	.014/.020	.003/.007	0.05/0.09	0.17/1.51	0.04/0.22
13	.048/.054	.027/.016	0.08/0.29	0.75/0.99	0.16/0.28
14	.106/.058	.040/.029	0.18/0.17	2.23/1.43	0.40/0.40
15	.026/.038	.008/.014	0.06/0.17	0.61/0.88	0.14/0.20
16	.153/.072	.054/.026	0.29/0.21	2.14/0.97	0.39/0.30
17	.020/.017	.004/.010	0.04/0.12	0.16/0.75	0.02/0.13
18	.074/.051	.025/.012	0.18/0.18	1.32/0.52	0.30.0.24
19	.059/.042	.014/.010	0.14/0.17	0.97/0.78	0.24/0.22
20	.039/.032	.010/.014	0.14/0.14	1.10/1.17	0.25/0.23

Table 34 -Concluded

(b) Passenger Response Data

Seat	1	2	3	4	5	6	7	8	9	10		
Subject	-	71	66	67	70	69	72	68	73	65		
Segment											Mean	Std. Dev.
1	-	2	3	2	1	2	2	2	3	1	2.00	0.71
2	-	5	5	4	5	5	4	3	6	5	4.67	0.87
3	-	4	4	3	4	4	3	2	4	2	3.33	0.87
4	-	4	5	5	7	6	5	2	5	4	4.78	1.39
5	-	4	5	3	6	4	2	3	4	2	3.67	1.32
6	-	5	6	3	7	5	4	2	5	5	4.67	1.50
7	-	4	4	4	4	4	3	2	4	2	3.44	0.88
8	-	4	4	3	2	3	2	2	4	1	2.78	1.09
9	-	4	4	2	2	1	3	2	4	4	2.89	1.17
10	-	4	2	4	1	1	2	2	3	1	2.22	1.20
11	-	3	4	4	6	7	5	2	6	5	4.67	1.58
12	-	4	3	2	3	3	3	2	3	2	2.78	0.67
13	-	4	4	3	4	2	4	3	4	3	3.44	0.73
14	-	3	4	4	6	4	5	4	4	5	4.33	0.87
15	-	4	5	3	3	4	4	2	4	2	3.44	1.01
16	-	4	3	2	5	6	5	2	5	5	4.11	1.45
17	-	4	4	3	2	2	2	2	3	1	2.56	1.01
18	-	4	3	4	6	4	4	2	4	2	3.67	1.22
19	-	4	4	3	3	2	3	2	4	2	3.00	0.87
20	-	4	3	5	4	2	4	4	4	1	3.44	1.24
Mean	-	3.90	3.95	3.30	4.05	3.55	3.45	2.35	4.15	2.75	3.49	
Std. Dev.	-	0.64	0.94	0.92	1.90	1.70	1.10	0.67	0.88	1.59		1.33

Table 35 - Data From Hampton Institute Flight 13

(a) Aircraft Motion Data

TIFS Flight 364 September 18, 1974

Segment	$n_z(R)$ g_{rms} I / O_T	$n_y(R)$ g_{rms} I / O_T	q(R) $(deg/sec)_{rms}$ I / O_T	p(R) $(deg/sec)_{rms}$ I / O_T	r(R) $(deg/sec)_{rms}$ I / O_T
1	.003/.008	.003/.003	0.02/0.05	0.07/0.12	0.02/0.03
2	.008/.018	.002/.025	0.03/0.12	0.05/0.83	0.02/0.21
3	.007/.007	.004/.003	0.02/0.04	0.13/0.10	0.05/0.03
4	.005/.018	.022/.021	0.44/0.25	0.82/0.87	0.04/0.24
5	.004/.011	.024/.017	0.23/0.15	0.55/0.41	0.19/0.15
6	.007/.008	.037/.009	0.27/0.06	1.29/0.62	0.31/0.05
7	.019/.010	.033/.003	0.15/0.05	1.64/0.12	0.30/0.03
8	.016/.007	.033/.005	0.14/0.05	1.59/0.34	0.24/0.03
9	.157/.098	.028/.020	0.32/0.28	1.29/0.95	0.20/0.30
10	.024/.005	.004/ 003	0.05/0.03	0.14/0.10	0.02/0.02
11	.075/.050	.015/.010	0.15/0.15	1.12/0.87	0.14/0.13
12	.284/.117	.103/.040	0.55/0.39	3.41/1.40	0.64/0.55
13	.020/.011	.010/.005	0.06/0.06	0.55/0.19	0.08/0.08
14	.077/.053	.016/.009	0.29/0.25	2.66/1.37	0.40/0.37
15	.132/.062	.061/.027	0.70/0.31	4.33/1.85	0.74/0.42
16	.011/.006	.007/.004	0.03/0.03	0.26/0.09	0.07/0.02
17	.206/.122	.080/.041	0.31/0.24	2.69/1.17	0.69/0.58
18	.042/.019	.010/.006	0.10/0.06	0.55/0.29	0.07/0.06
19	.126/.064	.010/.009	0.27/0.21	0.72/0.56	0.29/0.15
20	.157/.100	.028/.021	0.32/0.28	1.29/0.94	0.20/0.29

Table 35 -Concluded

(b) Passenger Response Data

Seat	1	2	3	4	5	6	7	8	9	10		
Subject	83	82	78	74	76	77	81	79	80	75		
Segment											Mean	Std. Dev.
1	3	1	2	1	1	2	4	2	5	2	2.30	1.34
2	7	4	3	5	1	3	5	4	5	4	4.10	1.60
3	4	1	2	2	1	2	4	2	4	2	2.40	1.17
4	6	5	4	5	2	2	6	4	5	4	4.30	1.42
5	6	5	5	5	2	3	7	5	5	4	4.70	1.42
6	3	1	2	3	1	2	4	2	4	2	2.40	1.07
7	2	1	2	2	1	2	4	2	5	1	2.20	1.32
8	6	4	3	5	2	3	7	4	5	4	4.30	1.49
9	7	6	5	7	2	4	7	5	6	5	5.40	1.58
10	1	1	2	2	2	2	4	2	4	2	2.20	1.03
11	7	4	4	5	2	3	5	5	4	4	4.30	1.34
12	7	6	6	7	3	4	7	5	6	5	5.60	1.35
13	4	1	2	2	2	2	4	4	4	2	2.70	1.16
14	5	5	2	5	2	2	5	4	4	2	3.60	1.43
15	5	7	5	6	3	4	7	5	5	4	5.10	1.29
16	1	2	2	2	2	2	2	3	4	1	2.10	0.88
17	7	7	5	7	4	4	7	5	7	5	5.80	1.32
18	3	1	2	2	1	2	3	4	4	1	2.30	1.16
19	3	4	2	4	1	2	3	4	4	2	2.90	1.10
20	6	6	5	6	2	3	7	5	5	5	5.00	1.49
Mean	4.65	3.60	3.25	4.15	1.85	2.65	5.10	3.80	4.75	3.05	3.69	
Std. Dev.	2.06	2.26	1.45	1.98	0.81	0.81	1.65	1.20	0.85	1.47		1.79

Table 36 - Data From Hampton Institute Flight 14

(a) Aircraft Motion Data

TIFS Flight 365 — September 18, 1974

Segment	$n_z(R)$ g_{rms} I / O_T	$n_y(R)$ g_{rms} I / O_T	q(R) $(deg/sec)_{rms}$ I / O_T	p(R) $(deg/sec)_{rms}$ I / O_T	r(R) $(deg/sec)_{rms}$ I / O_T
1	.284/.110	.103/.043	0 /0.17	0 /0.34	0.64/0.58
2	.024/.015	.004/.007	0 /0.08	0 /0.24	0.02/0.05
3	.075/.053	.015/.010	0 /0.08	0 /0.10	0.14/0.13
4	.157/.098	.028/.021	0 /0.12	0/0.22	0.20/0.30
5	0 /.020	.034/.023	0 /0.13	2.90/1.55	0.26/0.24
6	0 /.009	.021/.020	0 /0.07	0.92/0.74	0.15/0.23
7	0 /.006	.028/.013	0 /0.04	0.99/0.46	0.15/0.17
8	0 /.008	.016/.009	0 /0.04	2.66/1.35	0.40/0.33
9	.157/.101	.028/.022	0.32/0.29	1.29/0.97	0.20/0.31
10	.024/.058	.004/.003	0.05/0.03	0.14/0.07	0.02/0.02
11	.075/.050	.015/.010	0.15/0.15	1.12/0.86	0.14/0.14
12	.284/.121	.103/.045	0.55/0.39	3.41/1.45	0.64/0.60
13	.020/.011	.010/.005	0.06/0.05	0.55/0.19	0.08/0.08
14	.078/.050	.016/.009	0.29/0.26	2.66/1.37	0.40/0.36
15	.132/.060	.061/.029	0.70/0.30	4.33/1.74	0.74/0.41
16	.011/.007	.007/.007	0.03/0.04	0.26/0.08	0.07/0.02
17	.206/.118	.080/.041	0.31/0.22	2.69/1.09	0.69/0.55
18	.042/.023	.010/.009	0.10/0.06	0.55/0.32	0.07/0.09
19	.126/.063	.010/.011	0.27/0.21	0.72/0.51	0.29/0.14
20	.157/.100	.028/.024	0.32/0.28	1.29/0.93	0.20/0.30

Table 36 -Concluded

(b) Passenger Response Data

Seat	1	2	3	4	5	6	7	8	9	10		
Subject	78	74	79	77	80	76	83	82	81	75		
Segment											Mean	Std. Dev.
1	6	5	5	4	5	4	5	6	6	4	5.00	0.82
2	2	2	4	2	4	4	2	2	3	2	2.70	0.95
3	4	4	3	2	4	3	2	4	3	2	3.10	0.88
4	5	5	4	3	5	4	5	6	5	5	4.70	0.82
5	2	4	4	2	4	4	3	5	4	2	3.40	1.07
6	1	2	4	2	4	4	1	4	3	2	2.70	1.25
7	2	4	5	2	4	4	4	4	4	2	3.50	1.08
8	2	4	4	2	4	5	2	3	3	2	3.10	1.10
9	5	6	6	4	5	5	7	5	6	4	5.30	0.95
10	1	2	4	2	4	4	1	1	2	1	2.20	1.32
11	3	4	5	2	4	4	4	3	2	2	3.30	1.06
12	6	6	6	4	4	5	7	6	6	3	5.30	1.25
13	1	2	3	2	4	2	2	1	2	2	2.10	0.88
14	4	4	4	3	4	5	5	5	4	2	4.00	0.94
15	5	5	5	5	5	5	7	7	5	4	5.30	0.95
16	1	2	4	2	4	4	1	1	2	2	2.30	1.25
17	6	5	6	5	6	6	7	7	6	3	5.70	1.16
18	2	4	5	2	4	3	3	3	4	2	3.20	1.03
19	1	4	3	2	4	4	2	1	2	2	2.50	1.18
20	4	5	5	5	5	5	5	6	5	4	4.90	0.57
Mean	3.15	3.95	4.45	2.85	4.35	4.20	3.75	4.00	3.85	2.60	3.72	
Std. Dev.	1.87	1.32	0.94	1.18	0.59	0.89	2.15	2.05	1.50	1.05		1.53

Table 37 - Maneuvers Passenger Subject Characteristics

Subject Number	Age	Sex	Frequency of Flying Flights/yr
1	21	M	2
2	38	M	100+
3	30	M	1
4	20	F	12
5	36	M	100+
6	53	M	12
7	23	M	3
8	20	M	4
9	36	F	2
10	25	M	12
11	20	M	0
12	22	F	1
13	28	M	100+
14	44	M	3
15	56	M	40
16	42	F	3
17	19	M	2
18	24	M	4
19	55	F	0
20	54	M	1
21	35	F	2
22	33	F	1
23	32	M	30
24	27	M	3
25	35	F	6
26	35	F	6
27	43	F	0
28	20	F	1
29	54	M	1
30	32	M	12

TABLE 38- Descriptive and Parametric Summary of Test Maneuvers

(a) Maneuver Command Tape I

Maneuver No.	Maneuver Description	Max. Longit. Accel. (n_x), g-units	Max. Normal Accel. (n_z), g-units	Flight Path Angle (γ), deg	Max. Pitch Angle (θ), deg	Max. Roll Angle (ϕ), deg	Max. Roll Rate (p), deg/sec	Max. Pitch Rate (q), deg/sec	Climb Rate (h), m /sec	Indicated Airspeed (v_i), kt
1	Steady Descent			-2.6	+2.4				-4.3	144
2	Simple Turn					21	16			204
3	Longitudinal Deceleration	-.19	+.25		-4.8			-2.0		207
4	S - Turn					28	20			162
5	Steady Descent			-9.7	-1.7				-14.6	150
6	Turning deceleration with pitchover	-.20	+.25		+3.2	30	17			209
7	Simple Turn					31	19			164
8	Longitudinal Deceleration	-.10			-4.3			-2.0		212
9	Simple Turn					46	24			161
10	Steady Descent			+0.4	-2.1				+1.5	204
11	Simple Turn					47	18			205
12	Longitudinal Deceleration	-.18	+.35		-2.7			-3.0		198
13	S - Turn					42	23			159
14	Steady Descent			-7.1	-9.7				-14.9	206
15	Simple Turn					30	18			135
16	Longitudinal Deceleration	-.14	+.40		-7.1			-4.5		210
17	Simple Turn					32	23			161
18	Turning deceleration with pitchover	-.19			-5.5	39	18			215
19	Steady Descent			+0.5	+5.7				+0.6	143
20	Simple Turn					45	19			162
21	Longitudinal Deceleration	-.17	+.22		-.2			-3.1		199
22	S - Turn					28	17			161
23	Steady Descent			-3.5	-2.2				-8.5	200
24	Simple Turn					29	15			204

TABLE 38 - Concluded

(b) Maneuver Command Tape II

Maneuver No.	Maneuver Description	Max. Longit. Accel. (n_x), g-units	Max. Normal Accel. (n_z), g-units	Flight Path Angle (γ), deg	Max. Pitch Angle (θ), deg	Max. Roll Angle (ϕ), deg	Max. Roll Rate (p), deg/sec	Max. Pitch Rate (q), deg/sec	Climb Rate ($\dot{h}$), m/sec	Indicated Airspeed (v_i), kt
1	Simple Turn				38	24				165
2	Steady Descent			+0.5	+2.1				1.0	156
3	Simple Turn				18	6				165
4	Longitudinal Deceleration	-.10	0		-.2			0		208
5	S - Turn				24	10				166
6	Turning, decelerating with pitchover	-.09			-3.7	40	8			208
7	Simple Turn				37	8				202
8	Longitudinal Deceleration	-.12	+.20		-0.5			-1.8		204
9	Simple Turn				45	22				163
10	Steady Descent			-11.1	-13.4				-22.3	195
11	Simple Turn				26	10				142
12	Longitudinal Deceleration	-.10	+.46		-5.7			-2.0		209
13	S - Turn				41	11				161
14	Steady Descent			-6.4	-5.7				-11.6	140
15	Simple Turn				44	8				163
16	Longitudinal Deceleration	-.13	+.37		-3.7			-2.7		210
17	Simple Turn				36	24				162
18	Turning, Decelerating with pitchover	-.10			-4.6	27	10			212
19	Steady Descent			-3.2	-2.0				-5.2	158
20	Simple Turn				38	10				162
21	Longitudinal Deceleration	-.20	+.47		-4.1			-4.3		208
22	S - Turn				40	11				165
23	Steady Descent			-4.4	-5.8				-8.8	198
24	Simple Turn					15	6			136

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Table 39 - Data From Maneuver Flight 1 (Common Tape

TIFS Flight 330

(a) Aircraft Motion-Variable Mean Values

August 14, 1974

Segment	μ_{n_x} (g)	μ_{n_y} (g)	μ_{n_z} (g)	μ_p (deg/sec)	μ_q (deg/sec)	μ_r (deg/sec)	μ_ϕ (deg)	μ_θ (deg)	μ_γ (deg)	μ_{V_i} (kt)	μ_h (m)	$\mu_{\dot{h}}$ (m/sec)	Δt (sec)
1	.077	-.004	-.140	.34	1.61	2.35	24.81	4.06	-1.00	164.6	3118.	-1.78	43.
2	.039	.007	.012	.45	.13	.26	2.97	3.03	.60	158.0	3064.	1.00	33.
3	.065	.003	-.008	.45	.34	.93	9.90	3.87	.16	165.1	3101.	.24	42.
4	-.032	.010	.022	.47	.12	.17	.51	-.34	-1.09	192.5	3261.	-2.27	33.
5	.059	.009	-.023	.45	.55	-.65	-7.04	2.68	-1.11	166.1	3191.	-1.99	43.
6	-.021	.015	-.075	.44	1.55	1.42	17.06	-.12	-1.97	189.8	3143.	-3.92	41.
7	.040	-.005	-.068	.47	.86	1.49	18.28	.92	-.44	198.3	3059.	-1.02	45.
8	-.050	.004	.030	.47	.05	.24	1.60	2.09	1.51	182.0	3135.	3.18	34.
9	.063	-.004	-.147	.25	1.86	2.07	21.99	3.73	-.32	164.0	3132.	-.59	39.
10	-.191	.025	.076	.31	-.06	-.11	-1.76	-11.76	-9.70	192.6	2793.	-19.96	27.
11	.099	.005	-.037	.31	.93	1.60	14.86	5.71	-2.14	141.9	2363.	-3.19	43.
12	-.035	.010	.036	.40	.05	.29	1.17	-2.05	-2.91	193.5	2347.	-5.69	45.
13	.097	-.002	-.181	.39	2.26	.82	8.12	4.29	-1.57	165.7	2066.	-2.61	64.
14	-.043	.002	.020	.48	.03	.53	2.56	-.96	-4.64	142.0	1901.	-6.68	40.
15	.142	-.014	-.180	.07	2.47	2.61	27.74	6.79	.45	155.3	1758.	.68	47.
16	-.033	.017	.039	.40	.02	.08	.28	.61	-.30	193.6	1974.	-.28	33.
17	.085	-.001	-.066	.33	1.05	1.42	14.60	4.26	.28	162.2	1915.	.44	38.
18	.001	.000	-.000	.38	.38	1.05	10.72	-.54	-.98	190.4	2054.	-1.82	52.
19	-.036	.007	.021	.38	.13	.23	.30	-2.16	-3.62	181.0	1841.	-6.20	23.
20	.069	-.007	-.085	.32	1.25	1.82	17.92	3.95	-.22	183.6	1758.	-.38	44.
21	-.096	.008	.054	.39	-.05	-.03	-1.04	-.14	-.06	174.4	1920.	.44	32.
22	.068	.0[illegible]	-.141	.37	2.03	.02	.01	3.11	-1.55	187.7	1643.	-2.64	59.
23	-.081	.011	-.016	.28	.36	-.14	-2.60	-4.75	-3.65	200.9	1643.	-7.37	20.
24	.130	-.0[illegible]	.[illegible]09	.34	.22	.7[illegible]	5.41	7.4[illegible]	-.35	141.[illegible]	1818.	-.91	42.

Table 39- Continued

(b) Aircraft Motion-Variable Mean Deviations

Segment	λ_{n_x} (g)	λ_{n_y} (g)	λ_{n_z} (g)	λ_p (deg/sec)	λ_q (deg/sec)	λ_r (deg/sec)	λ_ϕ (deg)	λ_θ (deg)	λ_γ (deg)	λ_{V_i} (kt)	λ_h (m)	$\lambda_{\dot{h}}$ (m/sec)	Δt (sec)
1	.077	.011	.164	1.89	1.87	2.42	24.81	4.06	1.00	164.6	3118.	1.78	43.
2	.039	.007	.012	.49	.13	.26	2.97	3.03	.60	158.0	3084.	1.00	33.
3	.065	.005	.022	1.04	.35	.94	9.90	3.87	.16	165.1	3101.	.26	42.
4	.051	.010	.023	.47	.12	.17	.55	.34	1.13	192.5	3261.	2.33	33.
5	.059	.013	.043	2.50	.55	1.16	11.60	2.68	1.11	166.1	3191.	1.99	43.
6	.022	.015	.139	2.24	1.27	1.47	17.79	1.47	1.97	189.8	3143.	3.92	41.
7	.041	.008	.081	1.77	.88	1.49	18.28	1.95	1.03	198.3	3059.	2.21	45.
8	.053	.006	.045	.47	.24	.24	1.60	2.11	2.10	182.0	3135.	4.22	34.
9	.063	.012	.162	2.38	1.92	2.16	22.00	3.73	.74	164.0	3132.	1.29	39.
10	.191	.025	.085	.41	.40	.12	1.76	11.78	9.76	192.8	2793.	19.96	27.
11	.099	.011	.061	1.57	.97	1.78	14.86	5.71	2.14	141.9	2363.	3.19	43.
12	.053	.012	.064	.50	.39	.30	1.17	2.05	2.91	193.5	2347.	5.69	45.
13	.097	.015	.199	3.00	2.29	2.56	25.39	4.29	1.63	165.7	2066.	2.71	64.
14	.049	.005	.055	.48	.49	.53	2.56	3.51	4.64	142.0	1901.	6.68	40.
15	.142	.017	.192	1.97	2.47	2.81	27.74	6.79	.50	155.3	1758.	.76	47.
16	.071	.017	.068	.43	.48	.09	.38	2.35	2.29	183.6	1974.	4.16	33.
17	.085	.013	.093	2.33	1.10	1.67	15.20	4.28	.39	162.2	1915.	.64	38.
18	.063	.007	.062	1.31	.67	1.05	11.09	1.17	1.81	190.4	2054.	3.38	52.
19	.038	.007	.022	.39	.17	.23	.53	2.16	3.82	161.0	1841.	6.20	23.
20	.089	.010	.099	1.87	1.27	1.86	18.07	3.95	.33	163.6	1758.	.55	44.
21	.103	.009	.082	.44	.61	.08	1.04	3.40	3.22	174.4	1920.	5.46	32.
22	.088	.017	.172	3.11	2.06	2.38	23.55	3.11	1.62	167.9	1643.	2.71	59.
23	.081	.011	.040	.38	.37	.14	2.60	4.75	3.65	200.9	1643.	7.37	20.
24	.130	.009	.014	1.08	.28	1.05	7.55	7.41	.36	141.0	1618.	.52	42.

Table 39- Continued

(c) Aircraft Motion-Variable Standard Deviations

Segment	σ_{n_x} (g)	σ_{n_y} (g)	σ_{n_z} (g)	σ_p (deg/sec)	σ_q (deg/sec)	σ_r (deg/sec)	σ_ϕ (deg)	σ_θ (deg)	σ_γ (deg)	σ_{v_i} (kt)	σ_h (m)	$\sigma_{\dot{h}}$ (m/sec)	Δt (sec)
1	.027	.021	.163	4.75	1.65	1.77	17.16	.79	.75	1.0	33.	1.32	43.
2	.008	.002	.014	.26	.09	.06	.42	.05	.09	1.3	12.	.15	33.
3	.003	.007	.024	1.84	.26	.74	7.11	.24	.09	1.0	8.	.16	42.
4	.045	.007	.020	.11	.08	.05	.32	.16	.85	7.5	23.	1.71	33.
5	.011	.014	.049	4.11	.51	1.41	13.61	.21	.16	2.0	24.	.29	43.
6	.017	.007	.168	3.65	1.32	1.48	18.15	1.96	1.72	9.4	38.	3.32	41.
7	.022	.009	.093	3.16	.84	1.23	15.53	1.90	1.12	4.6	23.	2.41	45.
8	.050	.006	.059	.15	.40	.07	.27	1.22	1.78	15.5	35.	3.59	34.
9	.034	.019	.175	5.61	1.76	2.02	20.52	.95	.81	1.6	19.	1.41	39.
10	.057	.005	.081	.34	.69	.10	1.06	2.45	2.07	4.5	173.	4.28	27.
11	.029	.014	.065	3.08	.82	1.68	12.76	.46	.39	2.7	32.	.59	43.
12	.044	.010	.098	.28	.70	.17	.24	2.20	2.18	8.4	62.	3.99	45.
13	.033	.019	.186	5.12	1.90	3.03	30.43	.75	.97	1.6	72.	1.59	64.
14	.038	.006	.073	.19	.71	.09	.28	3.66	2.69	3.0	91.	3.89	40.
15	.037	.014	.180	3.43	2.09	1.92	18.71	.61	.39	1.5	7.	.60	47.
16	.067	.006	.111	.25	.81	.07	.34	2.43	2.94	11.1	20.	5.21	33.
17	.025	.023	.108	5.26	1.16	1.92	16.52	.55	.40	2.6	9.	.65	38.
18	.065	.009	.091	2.59	.79	1.03	11.50	1.97	2.29	7.3	34.	4.21	52.
19	.015	.004	.033	.19	.20	.05	.48	.08	.32	.6	43.	.52	23.
20	.012	.012	.103	3.57	1.20	1.74	16.54	.46	.33	2.0	11.	.54	44.
21	.060	.006	.138	.28	1.25	.10	.45	3.74	3.59	21.0	27.	5.86	32.
22	.037	.019	.167	5.10	1.76	2.96	29.02	.58	.78	2.6	57.	1.31	59.
23	.013	.004	.072	.31	.50	.05	.43	.93	.60	.6	42.	1.22	20.
24	.009	.010	.016	1.87	.18	1.03	7.18	.08	.19	1.0	13.	.27	42.

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Table 39- Continued

(d) Aircraft Motion-Variable Root-Mean-Square Values

Segment	ξ_{n_x} (g)	ξ_{n_y} (g)	ξ_{n_z} (g)	ξ_p (deg/sec)	ξ_q (deg/sec)	ξ_r (deg/sec)	ξ_ϕ (deg)	ξ_θ (deg)	ξ_γ (deg)	ξ_{v_i} (kt)	ξ_h (m)	$\xi_{\dot{h}}$ (m/sec)	Δt (sec)
1	.081	.021	.219	4.76	2.45	2.95	30.17	4.13	1.25	164.6	3119.	2.22	43.
2	.039	.007	.018	.52	.16	.27	3.00	3.03	.61	158.0	3084.	1.01	33.
3	.065	.007	.026	1.89	.42	1.19	12.19	3.88	.18	165.1	3101.	.29	42.
4	.055	.012	.030	.48	.14	.17	.60	.37	1.38	192.6	3261.	2.84	33.
5	.060	.016	.054	4.14	.74	1.55	15.32	2.69	1.12	166.2	3191.	2.01	43.
6	.030	.393	8.100	3.16	39.53	.26	2.63	3.21	.03	.2	3.	.85	41.
7	.045	.010	.116	3.19	1.20	1.93	23.90	2.12	1.21	198.3	3059.	2.62	45.
8	.071	.007	.066	.49	.40	.25	1.63	2.42	2.34	182.7	3135.	4.80	34.
9	.072	.019	.229	5.62	2.55	2.89	30.08	3.85	.87	164.0	3132.	1.52	39.
10	.199	.025	.113	.47	.69	.15	2.05	12.04	9.98	192.9	2798.	20.41	27.
11	.104	.015	.075	3.10	1.24	2.32	19.59	5.73	2.18	141.9	2363.	3.24	43.
12	.056	.014	.105	.56	.70	.33	1.19	3.01	3.64	193.7	2348.	6.95	45.
13	.103	.019	.259	5.13	2.96	3.14	31.49	4.36	1.84	165.7	2067.	3.05	64.
14	.058	.006	.076	.52	.71	.54	2.57	3.79	5.36	142.1	1903.	7.73	40.
15	.147	.020	.255	3.43	3.23	3.40	33.46	6.82	.59	155.3	1758.	.90	47.
16	.075	.018	.117	.47	.81	.11	.44	2.50	2.95	184.0	1974.	5.22	33.
17	.088	.023	.127	5.27	1.57	2.39	22.05	4.32	.48	162.3	1915.	.79	38.
18	.033	.222	8.650	1.48	25.05	.07	1.11	2.29	.03	.2	3.	1.01	52.
19	.041	.008	.039	.43	.24	.24	.57	2.16	3.83	161.0	1841.	6.22	23.
20	.089	.014	.134	3.58	1.74	2.52	24.30	3.98	.39	163.6	1758.	.66	44.
21	.115	.010	.148	.48	1.25	.11	1.14	3.74	3.59	175.7	1920.	5.88	32.
22	.096	.020	.232	5.12	2.68	2.96	29.02	3.17	1.76	167.9	1644.	2.94	59.
23	.082	.012	.074	.42	.61	.15	2.64	4.84	3.69	200.9	1643.	7.47	20.
24	.130	.012	.019	1.91	.33	1.25	9.24	7.41	.40	141.0	1618.	.58	42.

Table 39- Continued

(e) Aircraft Motion-Variable Maximum Deviations

Segment	$\dagger_{n_x}$ (g)	$\dagger_{n_y}$ (g)	$\dagger_{n_z}$ (g)	$\dagger_p$ (deg/sec)	$\dagger_q$ (deg/sec)	$\dagger_r$ (deg/sec)	$\dagger_\phi$ (deg)	$\dagger_\theta$ (deg)	$\dagger_\gamma$ (deg)	$\dagger_{v_i}$ (kt)	$\dagger_h$ (m)	$\dagger_{\dot{h}}$ (m/sec)	$\Delta\dagger$ (sec)
1	.126	-.112	-.535	21.05	5.80	6.82	41.80	4.92	-2.50	168.0	3170.	-4.42	43.
2	.050	.014	.120	.95	.62	.38	3.60	3.12	.76	160.8	3109.	1.22	33.
3	.073	-.024	-.083	7.60	1.04	2.20	17.80	4.16	.36	166.8	3124.	.61	42.
4	-.079	.022	.115	.75	.40	.30	1.00	-.56	-1.98	201.6	3299.	-3.90	33.
5	.080	.045	-.140	-11.45	1.84	-2.82	-24.60	3.08	-1.58	169.2	3239.	-2.83	43.
6	-.060	.033	-.393	-9.40	3.16	3.44	40.40	-4.48	-5.48	202.8	3200.	-10.64	41.
7	.074	-.034	-.300	8.60	2.54	3.30	36.60	3.30	-2.18	209.1	3094.	-4.66	45.
8	-.116	.017	.250	1.20	-1.94	.44	2.20	3.42	3.52	202.5	3185.	7.41	34.
9	.122	-.083	-.558	-22.00	5.78	6.06	44.90	5.50	-1.78	167.7	3162.	-3.11	39.
10	-.239	.037	-.323	1.10	3.80	-.32	-3.20	-13.88	-11.80	201.3	3056.	-23.96	27.
11	.147	.066	-.183	-10.10	2.44	4.04	28.80	6.76	-3.08	146.4	2431.	-4.63	43.
12	-.090	.045	.355	1.70	3.08	1.06	1.80	-8.64	-8.74	205.5	2438.	-16.31	45.
13	.150	-.051	-.540	-14.10	5.64	5.52	46.60	6.08	-3.76	169.2	2172.	-6.25	64.
14	-.099	.016	.195	1.10	-2.16	.70	3.10	5.66	-8.04	146.7	2012.	-11.61	40.
15	.189	-.049	-.475	9.20	5.58	5.22	46.00	7.62	1.64	158.1	1775.	2.59	47.
16	-.111	.029	.415	.90	-3.20	.26	-1.40	-4.94	-6.04	195.9	2012.	-10.36	33.
17	.143	-.106	-.383	20.95	4.40	6.34	35.20	5.20	1.38	166.2	1943.	2.29	38.
18	-.101	-.033	.440	-10.55	-3.32	2.52	25.50	-5.28	-5.74	203.4	2103.	-10.39	52.
19	.053	.017	.218	.75	1.14	.36	-1.00	-2.58	-4.22	162.6	1920.	-6.89	23.
20	.115	-.043	-.300	-11.60	3.30	4.34	36.10	4.58	-.94	171.0	1783.	-1.58	44.
21	-.162	.024	.523	.95	-5.14	-.44	-2.10	-8.12	-7.00	206.7	1974.	-10.79	32.
22	.156	.056	-.493	-12.20	5.16	-4.60	-42.40	4.48	-3.12	174.0	1730.	-5.24	59.
23	-.097	.024	-.238	-1.05	1.84	-.34	-4.70	-5.80	-4.18	201.9	1722.	-8.41	20.
24	.159	-.041	.070	6.65	.80	2.66	13.40	7.58	-.68	144.3	1646.	-.94	42.

Table 39 -Concluded

(f) Passenger Response Data

Seat	1	2	3	4	5	6	7	8	9	10		
Subject	13	23	11	28	15	7	26	16	21	18		
Segment											Mean	Std. Dev.
1	5	5	3	2	6	5	6	1	3	5	4.10	1.73
2	2	4	2	1	2	1	2	1	1	2	1.80	0.92
3	2	4	2	1	2	1	2	1	1	3	1.90	0.99
4	3	4	3	2	3	2	2	1	3	4	2.70	0.95
5	3	4	3	1	4	2	2	1	5	5	3.00	1.49
6	5	5	4	3	6	5	6	1	5	6	4.60	1.58
7	4	4	3	1	5	3	4	1	2	5	3.20	1.48
8	5	5	4	2	2	4	3	1	4	5	3.50	1.43
9	6	6	4	2	5	3	6	2	7	6	4.70	1.83
10	5	7	5	5	6	6	6	2	5	7	5.40	1.43
11	4	5	3	2	3	3	2	2	5	5	3.40	1.26
12	5	6	4	3	5	4	3	2	3	6	4.10	1.37
13	6	7	4	2	5	3	6	2	5	6	4.60	1.78
14	3	4	3	6	1	2	3	1	2	2	2.70	1.49
15	5	5	4	2	3	2	6	2	3	5	3.70	1.49
16	6	7	5	4	4	5	5	2	5	6	4.90	1.37
17	3	5	4	1	4	3	2	2	5	5	3.40	1.43
18	7	7	5	5	6	6	6	2	5	7	5.60	1.51
19	1	4	2	2	1	1	2	1	2	6	2.20	1.62
20	4	4	3	1	4	2	3	1	4	5	3.10	1.37
21	6	7	5	6	5	5	6	2	5	7	5.40	1.43
22	5	5	6	3	3	3	4	2	3	5	3.90	1.29
23	4	5	5	4	2	3	3	2	3	5	3.60	1.17
24	2	4	2	3	1	1	2	1	2	2	2.00	0.94
Mean	**4.21**	**5.13**	**3.67**	**2.67**	**3.67**	**3.13**	**3.83**	**1.50**	**3.67**	**5.00**	**3.65**	
Std. Dev.	**1.56**	**1.15**	**1.13**	**1.58**	**1.69**	**1.57**	**1.74**	**0.51**	**1.55**	**1.47**		**1.74**

C.2

Table 40- Data From Maneuver Flight 2

(a) Aircraft Motion-Variable Mean Values

TIFS Flight 342

September 10, 1974

Segment	μ_{n_x} (g)	μ_{n_y} (g)	μ_{n_z} (g)	μ_p (deg/sec)	μ_q (deg/sec)	μ_r (deg/sec)	μ_ϕ (deg)	μ_θ (deg)	μ_γ (deg)	μ_{V_i} (kt)	μ_h (m)	$\mu_{\dot{h}}$ (m/sec)	Δt (sec)
1	.029	.005	.006	.43	.17	-.17	-1.16	2.12	-3.03	145.9	3043.	-4.76	33.
2	.048	-.007	-.008	.39	.39	.78	9.96	1.61	.27	199.3	2815.	.51	39.
3	-.083	.003	.047	.26	-.02	-.14	-1.31	.88	.94	178.1	2877.	2.41	38.
4	.055	.003	-.056	.37	1.04	.18	2.43	3.28	-1.01	163.9	2568.	-1.78	55.
5	-.032	.026	-.026	.40	.32	-.15	-1.93	-1.94	-8.24	159.0	2051.	-13.28	26.
6	-.077	-.002	-.026	.32	.68	.89	10.55	3.03	2.22	173.2	2085.	4.02	33.
7	.065	-.007	-.044	.20	.90	1.50	15.95	3.60	-.46	168.2	2088.	-.83	33.
8	-.073	.008	.031	.36	.09	-.03	-.46	-1.17	-1.62	202.1	2006.	-3.22	36.
9	.063	-.008	-.115	.23	1.64	1.72	18.15	2.50	-1.09	167.2	1770.	-1.88	43.
10	-.048	.003	.008	.29	.16	-.18	-2.55	-1.96	.42	205.8	1776.	.83	31.
11	.030	-.011	-.161	.42	1.69	1.63	21.91	1.37	.48	208.5	1881.	.98	41.
12	.009	.003	.048	.36	-.02	-.23	-2.45	2.59	1.72	166.2	2295.	3.92	34.
13	.100	.001	-.125	.54	1.78	-1.25	-13.03	5.08	.23	163.6	2236.	.38	39.
14	-.128	-.003	-.002	.29	.31	-.22	-3.39	-8.72	-6.01	203.1	2025.	-12.57	30.
15	.119	-.005	-.038	.29	.95	1.48	12.61	5.52	-3.48	137.8	1604.	-4.79	42.
16	-.054	.005	.025	.34	.18	-.07	-1.18	.76	.20	190.1	1477.	.83	34.
17	.069	-.009	-.047	.15	.92	1.35	13.36	4.06	.33	166.1	1533.	.51	37.
18	-.082	-.000	-.036	.26	.91	1.23	12.52	1.33	1.33	173.8	1774.	2.97	34.
19	.086	.000	.005	.43	.20	-.31	-2.39	5.63	-.07	146.4	1777.	-.12	36.
20	.068	-.009	-.126	.36	1.81	1.89	19.87	4.00	-.79	164.9	1712.	-1.32	42.
21	-.065	.004	.009	.43	.15	-.13	-1.10	4.59	4.00	179.5	1872.	7.65	33.
22	.046	.001	-.054	.37	.96	-.26	-2.29	3.16	-.33	165.5	1904.	-.58	47.
23	-.029	.002	-.032	.40	.37	-.49	-5.69	.12	-.75	204.8	1820.	-1.61	34.
24	.052	-.010	-.033	.19	.60	.97	11.68	3.50	2.52	198.1	2101.	5.12	41.

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Table 40- Continued

(b) Aircraft Motion-Variable Mean Deviations

Segment	λ_{n_x} (g)	λ_{n_y} (g)	λ_{n_z} (g)	λ_p (deg/sec)	λ_q (deg/sec)	λ_r (deg/sec)	λ_ϕ (deg)	λ_θ (deg)	λ_γ (deg)	λ_{v_i} (kt)	λ_h (m)	$\lambda_{\dot{h}}$ (m/sec)	Δt (sec)
1	.029	.005	.006	.43	.17	.17	1.16	2.12	3.03	145.9	3048.	4.76	33.
2	.048	.009	.027	1.35	.41	.84	10.40	1.61	.39	199.3	2815.	.81	39.
3	.091	.004	.061	.40	.43	.15	1.31	3.89	3.60	178.1	2877.	6.71	38.
4	.055	.011	.069	2.22	1.05	1.86	17.44	3.28	1.01	163.9	2568.	1.78	55.
5	.033	.026	.031	.40	.32	.15	1.93	2.00	8.24	159.0	2051.	13.28	26.
6	.091	.005	.064	2.04	.72	1.26	13.20	3.03	2.22	173.2	2085.	4.02	33.
7	.065	.011	.064	1.86	.92	1.76	16.89	3.60	.46	168.2	2088.	.83	33.
8	.073	.009	.032	.36	.26	.03	.46	1.17	1.63	202.1	2006.	3.26	36.
9	.063	.013	.130	2.25	1.67	2.02	19.87	2.50	1.10	167.2	1770.	1.89	43.
10	.048	.003	.014	.37	.23	.18	2.55	1.96	.42	205.8	1776.	.83	31.
11	.030	.012	.168	2.57	1.69	1.74	22.94	1.47	.69	208.5	1881.	1.46	41.
12	.053	.004	.062	.37	.54	.23	2.45	4.91	4.76	166.2	2295.	8.33	39.
13	.100	.017	.155	4.51	1.80	2.05	19.23	5.08	.36	163.6	2236.	.61	39.
14	.128	.003	.050	.30	.43	.22	3.39	8.72	6.01	203.1	2025.	12.57	30.
15	.119	.014	.066	1.66	.99	1.89	13.07	5.52	3.48	137.8	1604.	4.79	42.
16	.065	.007	.095	.34	.78	.07	1.18	3.63	3.52	190.1	1477.	6.58	34.
17	.069	.014	.060	1.90	.96	1.74	16.05	4.06	.47	166.1	1533.	.76	37.
18	.082	.004	.101	2.31	1.20	1.38	14.73	3.83	3.81	173.8	1774.	6.71	34.
19	.086	.001	.007	.43	.21	.31	2.39	5.63	.15	146.4	1777.	.22	36.
20	.088	.013	.144	2.22	1.82	2.13	21.40	4.00	.79	164.9	1712.	1.32	42.
21	.070	.004	.077	.43	.53	.15	1.12	4.66	4.33	179.5	1872.	8.11	33.
22	.046	.011	.063	2.59	.99	1.75	16.09	3.18	.35	165.5	1904.	.61	47.
23	.037	.002	.038	.41	.38	.45	5.69	.83	1.30	204.8	1820.	2.71	34.
24	.052	.010	.037	1.46	.60	1.12	13.63	3.50	2.52	198.0	2101.	5.12	41.

Table 40- Continued

(c) Aircraft Motion-Variable Standard Deviations

Segment	σ_{n_x} (g)	σ_{n_y} (g)	σ_{n_z} (g)	σ_p (deg/sec)	σ_q (deg/sec)	σ_r (deg/sec)	σ_ϕ (deg)	σ_θ (deg)	σ_γ (deg)	σ_{V_i} (kt)	σ_h (m)	$\sigma_{\dot{h}}$ (m/sec)	Δt (sec)
1	.007	.004	.007	.12	.10	.05	.22	.06	.33	1.1	51.	.52	33.
2	.014	.010	.034	2.95	.30	.79	9.55	.37	.46	3.6	11.	.97	39.
3	.068	.004	.101	.39	.70	.22	1.60	3.92	3.63	22.6	49.	6.46	38.
4	.019	.020	.062	4.90	.65	2.21	21.04	.47	.26	2.0	29.	.44	55.
5	.012	.005	.066	.27	.36	.13	.47	.70	1.11	3.2	103.	1.70	26.
6	.077	.007	.077	4.25	.64	1.37	14.34	.63	.61	24.6	48.	1.46	33.
7	.008	.018	.063	4.26	.65	1.49	13.18	.51	.22	.9	13.	.39	33.
8	.033	.007	.052	.17	.38	.03	.35	1.36	1.44	11.8	30.	2.72	36.
9	.030	.020	.146	5.38	1.61	2.17	20.91	1.02	.83	1.5	27.	1.42	43.
10	.006	.003	.032	.44	.21	.13	1.26	.25	.20	2.3	6.	.43	31.
11	.018	.012	.175	5.44	1.47	1.68	21.96	.95	.62	1.7	28.	1.31	41.
12	.060	.004	.100	.19	.92	.12	.36	4.45	4.57	25.3	64.	7.81	39.
13	.038	.030	.191	8.12	1.83	2.58	23.36	.50	.47	.7	21.	.79	39.
14	.035	.003	.107	.23	.67	.06	.27	.85	.55	5.1	123.	1.15	30.
15	.022	.026	.074	3.70	1.02	2.16	13.52	.29	.72	2.8	62.	1.01	42.
16	.050	.009	.161	.19	1.20	.08	.30	3.85	3.88	16.7	43.	7.08	34.
17	.014	.020	.064	4.54	.77	1.72	15.08	.66	.40	1.2	9.	.66	37.
18	.047	.007	.133	4.88	1.23	1.64	17.26	4.01	3.88	21.4	47.	6.67	34.
19	.007	.002	.009	.13	.11	.06	.26	.07	.19	.9	6.	.28	36.
20	.027	.018	.162	5.03	1.72	2.15	20.60	.83	.62	1.6	18.	1.03	42.
21	.066	.005	.126	.31	.83	.14	1.19	2.14	2.27	25.8	80.	4.37	33.
22	.016	.017	.065	4.95	.73	2.10	19.74	.31	.28	1.2	10.	.48	47.
23	.028	.003	.066	.33	.37	.08	.69	1.29	1.19	3.4	28.	2.42	34.
24	.004	.008	.038	3.46	.39	1.04	12.66	.39	.17	1.1	59.	.35	41.

Table 40- Continued

(d) Aircraft Motion-Variable Root-Mean-Square Values

Segment	ξ_{n_x} (g)	ξ_{n_y} (g)	ξ_{n_z} (g)	ξ_p (deg/sec)	ξ_q (deg/sec)	ξ_r (deg/sec)	ξ_ϕ (deg)	ξ_θ (deg)	ξ_γ (deg)	ξ_{v_i} (kt)	ξ_h (m)	$\xi_{\dot{h}}$ (m/sec)	Δt (sec)
1	.030	.007	.009	.45	.20	.18	1.18	2.13	3.05	145.9	3049.	4.79	33.
2	.050	.012	.035	2.98	.49	1.11	13.80	1.65	.54	199.3	2815.	1.09	39.
3	.107	.005	.111	.47	.70	.26	2.07	4.02	3.75	179.5	2877.	6.90	38.
4	.058	.020	.085	4.92	1.23	2.22	21.18	3.31	1.05	163.9	2568.	1.84	55.
5	.034	.027	.071	.48	.48	.20	1.98	2.06	8.31	159.0	2053.	13.39	26.
6	.027	.148	16.500	1.64	28.09	.12	1.46	2.46	.03	.1	4.	.46	33.
7	.066	.019	.077	4.27	1.11	2.12	20.69	3.64	.51	168.2	2088.	.91	33.
8	.081	.011	.061	.40	.39	.04	.57	1.79	2.16	202.5	2006.	4.21	36.
9	.070	.021	.186	5.38	2.30	2.76	27.69	2.70	1.37	167.2	1770.	2.35	43.
10	.048	.004	.033	.52	.27	.22	2.84	1.98	.46	205.8	1776.	.93	31.
11	.034	.016	.238	5.45	2.24	2.34	31.02	1.66	.78	208.5	1881.	1.64	41.
12	.061	.005	.111	.41	.92	.26	2.47	5.14	4.88	168.1	2296.	8.74	39.
13	.107	.030	.229	8.14	2.55	2.86	26.75	5.10	.52	163.6	2236.	.87	39.
14	.133	.004	.107	.37	.74	.23	3.40	8.76	6.03	203.2	2029.	12.62	30.
15	.121	.027	.083	3.71	1.39	2.62	18.49	5.53	3.55	137.9	1605.	4.89	42.
16	.073	.011	.164	.39	1.21	.10	1.22	3.92	3.88	190.8	1478.	7.13	34.
17	.070	.022	.080	4.55	1.20	2.18	20.14	4.12	.52	166.1	1533.	.83	37.
18	.035	.445	19.250	4.04	36.11	.14	2.27	3.38	.01	.1	3.	.80	34.
19	.086	.002	.010	.45	.23	.32	2.40	5.63	.20	146.4	1777.	.30	36.
20	.092	.021	.205	5.04	2.50	2.87	28.63	4.09	1.00	165.0	1712.	1.67	42.
21	.093	.006	.127	.53	.84	.20	1.62	5.07	4.60	181.4	1874.	8.81	33.
22	.049	.017	.084	4.96	1.23	2.12	19.87	3.20	.44	165.5	1904.	.75	47.
23	.040	.003	.073	.52	.52	.45	5.73	1.30	1.41	204.8	1820.	2.91	34.
24	.052	.013	.050	3.46	.72	1.42	17.23	3.53	2.53	198.0	2102.	5.13	41.

Table 40- **Continued**

(e) Aircraft Motion-Variable Maximum Deviations

Segment	$\uparrow n_x$ (g)	$\uparrow n_y$ (g)	$\uparrow n_z$ (g)	$\uparrow p$ (deg/sec)	$\uparrow q$ (deg/sec)	$\uparrow r$ (deg/sec)	$\uparrow \phi$ (deg)	$\uparrow \theta$ (deg)	$\uparrow \gamma$ (deg)	$\uparrow v_i$ (kt)	$\uparrow h$ (m)	$\uparrow \dot{h}$ (m/sec)	Δt (sec)
1	.042	.016	.043	.55	.70	-.32	-1.70	2.40	-3.52	148.8	3132.	-5.46	33.
2	.074	-.059	.123	13.35	1.00	1.98	20.00	2.60	1.18	204.9	2827.	2.53	39.
3	-.158	.011	.348	-1.60	-2.24	-.80	-5.90	-5.98	-5.66	209.1	2949.	-9.05	38.
4	.086	-.083	-.203	-18.10	2.44	4.22	-28.30	3.74	-1.60	168.3	2637.	-2.71	55.
5	-.050	.043	-.245	1.35	1.82	-.70	-3.20	-2.42	-9.66	164.1	2217.	-15.15	26.
6	-.166	-.027	-.183	16.50	1.66	2.94	28.80	4.06	2.94	211.5	2156.	6.19	33.
7	.090	-.091	-.185	15.70	2.30	4.50	27.40	4.16	-1.02	168.9	2141.	-1.80	33.
8	-.110	.027	.280	.90	-1.66	-.18	-1.10	-4.54	-4.70	218.7	2073.	-9.05	36.
9	.117	-.104	-.408	-20.80	4.06	5.62	43.40	4.32	-2.60	171.0	1829.	-4.45	43.
10	-.061	.011	.165	1.75	-.96	-.38	-5.00	-2.28	1.32	209.7	1791.	2.71	31.
11	.056	-.051	-.543	17.25	4.04	3.74	45.90	3.10	1.34	212.1	1913.	2.77	41.
12	.106	.019	.348	.95	3.74	-.64	-3.40	6.62	6.14	207.3	2400.	12.77	39.
13	.162	.088	-.468	-24.95	4.96	-5.66	-44.10	6.10	1.64	164.1	2271.	2.68	39.
14	-.174	-.011	-.423	.95	3.06	-.38	-4.30	-9.66	-6.94	207.3	2256.	-13.99	30.
15	.166	-.115	-.223	14.55	4.38	7.58	30.70	6.40	-4.70	144.6	1730.	-6.43	42.
16	-.130	.027	.465	.85	-4.22	-.38	-2.50	-7.42	-7.04	213.9	1547.	-12.04	34.
17	.106	-.107	-.228	-18.00	2.78	5.16	29.00	4.84	.86	168.9	1547.	1.52	37.
18	-.177	-.035	-.445	19.25	4.04	3.74	36.30	-6.56	6.40	204.9	1852.	12.22	34.
19	.113	-.011	.028	.55	.64	-.38	-2.70	5.82	-.38	148.8	1791.	-.58	36.
20	.146	-.091	-.468	20.15	5.02	5.76	42.70	5.14	-1.96	168.9	1768.	-3.26	42.
21	-.154	.019	.348	1.35	-3.26	-.54	-3.40	6.30	6.26	213.6	2012.	12.98	33.
22	.074	-.067	-.188	15.25	2.30	3.58	-30.60	3.58	-.96	168.6	1913.	-1.55	47.
23	-.058	.011	-.265	2.05	1.82	-.54	-7.30	3.72	3.36	209.7	1897.	6.61	34.
24	.060	-.035	-.120	-13.30	1.18	2.14	24.30	4.04	2.78	200.1	2217.	5.70	41.

Table 40 -Concluded

(f) Passenger Response Data

Seat	1	2	3	4	5	6	7	8	9	10		
Subject	25	4	12	9	27	14	10	15	6	10		
Segment											Mean	Std. Dev.
1	2	2	3	2	2	2	2	1	2	1	1.90	0.57
2	3	2	3	5	5	2	2	2	3	2	2.90	1.20
3	3	3	5	5	5	3	3	2	4	6	3.90	1.29
4	3	2	5	4	5	4	3	4	3	5	3.80	1.03
5	2	1	3	2	6	1	3	2	2	6	2.80	1.81
6	2	2	4	5	5	3	4	4	3	4	3.60	1.07
7	2	1	3	5	3	2	2	5	2	4	2.90	1.37
8	1	2	3	3	3	1	3	4	3	2	2.50	0.97
9	5	2	6	6	5	3	5	5	5	6	4.80	1.32
10	1	1	2	1	1	1	3	2	3	5	2.00	1.33
11	5	3	6	5	6	5	5	3	5	7	5.00	1.25
12	2	3	6	5	5	6	5	2	4	5	4.30	1.49
13	3	3	6	7	7	6	5	5	5	6	5.30	1.42
14	2	2	5	5	5	6	4	5	5	4	4.30	1.34
15	4	3	5	5	5	7	4	3	5	6	4.70	1.25
16	3	5	6	6	6	7	4	4	6	7	5.40	1.35
17	2	1	4	5	6	4	3	2	3	4	3.40	1.51
18	2	2	7	4	6	5	4	2	6	7	4.50	2.01
19	1	1	1	1	2	1	2	1	2	3	1.50	0.71
20	3	3	5	4	5	5	3	6	4	6	4.40	1.17
21	1	3	6	5	6	4	3	4	4	5	4.10	1.52
22	1	1	3	3	5	5	3	5	2	3	3.10	1.52
23	1	1	2	2	1	2	2	4	3	2	2.00	0.94
24	1	1	2	2	5	4	2	1	2	2	2.20	1.32
Mean	2.29	2.08	4.21	4.04	4.58	3.71	3.29	3.25	3.58	4.50	3.55	
Std. Dev.	1.20	1.02	1.67	1.65	1.67	1.94	1.04	1.51	1.32	1.82		1.69

Table 41- Data From Maneuver Flight 3

(a) Aircraft Motion-Variable Mean Values

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Segment	μ_{n_x} (g)	μ_{n_y} (g)	μ_{n_z} (g)	μ_p (deg/sec)	μ_q (deg/sec)	μ_r (deg/sec)	μ_ϕ (deg)	μ_θ (deg)	μ_γ (deg)	μ_{V_i} (kt)	μ_h (m)	$\mu_{\dot{h}}$ (m/sec)	Δt (sec)
1	.096	-.012	-.093	.22	1.45	1.62	20.56	4.26	-.50	160.5	3235.	-.90	43.
2	.036	-.001	.007	.36	.17	-.13	-.17	2.24	.34	157.9	3254.	.58	33.
3	.042	-.003	-.092	.38	.34	.53	6.91	3.00	-.46	164.5	3218.	-.86	42.
4	-.067	.005	.006	.36	.23	-.11	-.66	-.50	-1.35	197.3	3165.	-2.89	33.
5	.039	.003	-.025	.37	.57	-.56	-4.54	2.96	-.84	166.6	3078.	-1.54	43.
6	-.032	-.004	-.090	.37	1.23	1.46	19.42	.02	-1.84	191.6	3014.	-3.74	41.
7	.044	-.027	-.075	.36	1.01	1.49	20.62	.90	-.22	200.3	2973.	-.57	45.
8	-.045	-.007	.024	.40	.13	-.15	-1.78	1.07	1.44	182.2	3046.	3.07	34.
9	.066	-.013	-.106	.22	1.57	1.69	18.81	3.00	-.44	163.2	3051.	-.78	39.
10	-.172	-.006	.066	.22	.02	-.23	-3.48	-11.44	-8.22	193.3	2801.	-16.90	27.
11	.105	-.011	-.026	.23	.85	1.45	12.67	5.17	-2.27	140.0	2464.	-3.34	43.
12	-.053	.001	.023	.35	.13	-.04	-.33	-1.24	-2.19	196.6	2209.	-4.36	45.
13	.107	-.007	-.147	.32	2.66	.66	7.25	3.72	-1.43	163.4	2088.	-2.45	64.
14	-.068	.005	.012	.41	.11	.25	.80	-3.92	-6.30	140.2	1860.	-8.94	40.
15	.115	-.018	-.176	.16	2.54	2.86	27.08	4.89	-.99	149.5	1530.	-1.48	47.
16	-.070	.001	.030	.33	.11	.13	.99	-.24	-.41	186.3	1579.	-.46	33.
17	.049	-.010	-.072	.30	1.19	1.55	15.02	2.71	-.99	159.8	1443.	-1.60	38.
18	-.038	-.005	-.002	.25	.42	.79	8.86	-.73	-1.01	193.9	1461.	-1.86	52.
19	-.037	.008	.010	.29	.22	-.15	-1.22	-1.55	-3.03	155.6	1324.	-4.69	23.
20	.069	-.007	-.068	.32	1.18	1.55	15.67	3.32	-.92	156.5	1292.	-.64	44.
21	-.092	.004	.047	.42	-.01	-.09	-.30	.17	1.23	170.0	1508.	2.67	32.
22	.086	.002	-.127	.34	1.41	.19	2.74	2.47	-1.56	161.3	1372.	-2.53	59.
23	-.117	.010	-.020	.27	.42	-.63	.02	-6.61	-4.65	202.0	1225.	-9.25	20.
24	.090	.002	-.001	.34	.48	.95	8.41	4.98	-2.24	135.8	1022.	-2.95	42.

Table 41 - Continued

(b) Aircraft Motion-Variable Mean Deviations

Segment	λ_{n_x} (g)	λ_{n_y} (g)	λ_{n_z} (g)	λ_p (deg/sec)	λ_q (deg/sec)	λ_r (deg/sec)	λ_ϕ (deg)	λ_θ (deg)	λ_γ (deg)	λ_{v_i} (kt)	λ_h (m)	$\lambda_{\dot{h}}$ (m/sec)	Δt (sec)
1	.090	.015	.111	1.82	1.49	1.95	20.57	4.26	.58	160.5	3235.	1.03	43.
2	.036	.002	.008	.36	.18	.13	.17	2.24	.34	157.9	3254.	.58	33.
3	.042	.004	.011	.94	.24	.69	7.35	3.00	.46	164.5	3218.	.88	42.
4	.067	.006	.016	.36	.23	.11	.66	.53	1.35	197.3	3165.	2.89	33.
5	.039	.007	.032	2.34	.57	1.06	10.42	2.96	.84	166.6	3078.	1.54	43.
6	.032	.005	.142	2.11	1.39	1.48	19.42	1.48	1.85	191.6	3014.	3.75	41.
7	.044	.027	.086	1.61	1.02	1.49	20.62	1.92	.96	200.3	2973.	2.09	45.
8	.052	.008	.037	.40	.25	.15	1.78	1.46	1.92	182.2	3046.	3.96	34.
9	.066	.017	.121	2.24	1.61	1.96	20.20	3.00	.76	163.2	3051.	1.34	39.
10	.172	.006	.071	.29	.37	.23	3.48	11.44	8.22	193.3	2801.	16.90	27.
11	.105	.014	.043	1.41	.86	1.68	13.26	5.17	2.27	140.0	2464.	3.34	43.
12	.056	.006	.056	.36	.43	.08	.33	1.49	2.19	196.6	2209.	4.36	45.
13	.107	.020	.177	2.82	2.17	2.49	25.66	4.20	1.43	163.4	2088.	2.45	64.
14	.068	.005	.049	.41	.49	.25	.80	4.67	6.30	140.2	1860.	8.94	40.
15	.115	.019	.182	1.78	2.58	2.88	27.08	4.89	.99	149.5	1530.	1.48	47.
16	.079	.005	.060	.36	.48	.13	.99	1.88	2.14	186.3	1579.	3.86	33.
17	.049	.015	.089	2.21	1.21	1.70	15.36	2.71	1.00	159.8	1443.	1.60	38.
18	.053	.006	.058	1.25	.66	.87	10.06	1.12	1.42	193.9	1461.	2.66	52.
19	.037	.006	.011	.29	.23	.15	1.22	1.55	3.03	155.6	1328.	4.69	23.
20	.069	.010	.075	1.75	1.18	1.80	16.92	3.32	.61	158.5	1292.	.98	44.
21	.099	.005	.072	.46	.59	.10	.46	3.36	3.52	170.0	1508.	5.91	32.
22	.086	.017	.135	2.84	1.92	2.35	22.84	2.47	1.56	161.3	1372.	2.53	59.
23	.117	.010	.035	.34	.42	.04	.18	6.61	4.65	202.0	1225.	9.25	20.
24	.090	.006	.013	.98	.43	1.10	8.44	4.98	2.24	135.8	1022.	2.95	42.

Table 41 - Continued

(c) Aircraft Motion-Variable Standard Deviations

Segment	σ_{n_x} (g)	σ_{n_y} (g)	σ_{n_z} (g)	σ_p (deg/sec)	σ_q (deg/sec)	σ_r (deg/sec)	σ_ϕ (deg)	σ_θ (deg)	σ_γ (deg)	σ_{v_i} (kt)	σ_h (m)	$\sigma_{\dot{h}}$ (m/sec)	Δt (sec)
1	.022	.019	.115	4.51	1.26	1.80	16.98	.76	.49	1.6	16.	.86	43.
2	.005	.002	.013	.19	.13	.07	.15	.17	.23	1.2	17.	.44	33.
3	.006	.006	.015	1.73	.18	.68	6.82	.24	.15	1.8	24.	.24	42.
4	.041	.006	.024	.18	.15	.08	.42	.29	.77	8.9	35.	1.59	33.
5	.011	.011	.039	3.93	.43	1.34	13.34	.21	.17	1.7	27.	.30	43.
6	.021	.006	.173	3.51	1.38	1.43	17.95	1.89	1.59	10.4	41.	3.14	41.
7	.018	.008	.098	3.01	.90	1.18	15.33	1.89	1.05	5.0	28.	2.29	45.
8	.048	.009	.054	.30	.36	.10	.55	1.17	1.64	16.4	30.	3.42	34.
9	.026	.020	.132	5.32	1.38	1.98	19.74	.96	.76	2.1	24.	1.34	39.
10	.069	.006	.076	.28	.60	.11	.92	2.49	2.16	3.8	150.	4.48	27.
11	.015	.015	.047	2.91	.68	1.64	12.35	.25	.64	2.0	47.	.91	43.
12	.037	.007	.094	.26	.65	.13	.29	2.01	1.86	10.2	51.	3.46	45.
13	.035	.025	.172	4.62	1.84	2.97	30.38	2.33	1.33	4.5	48.	2.33	64.
14	.030	.004	.070	.20	.69	.09	.36	3.52	2.52	6.9	126.	3.61	40.
15	.034	.014	.167	3.28	2.10	2.01	18.25	.61	.53	1.1	38.	.77	47.
16	.060	.006	.105	.24	.75	.08	.30	2.34	2.83	14.2	27.	4.97	33.
17	.020	.021	.103	4.99	1.20	1.90	16.15	.55	.50	1.7	31.	.78	38.
18	.053	.007	.084	2.52	.71	.97	11.08	1.59	1.73	10.3	23.	3.11	52.
19	.016	.005	.027	.20	.16	.10	.55	.09	.31	1.0	34.	.46	23.
20	.017	.011	.079	3.41	1.01	1.77	16.10	.47	.51	1.9	9.	.80	44.
21	.067	.005	.121	.48	1.14	.13	.87	3.61	3.41	24.6	37.	5.49	32.
22	.029	.020	.135	4.73	1.58	2.96	28.56	.68	1.15	3.1	50.	1.85	59.
23	.016	.005	.067	.30	.47	.04	.32	.97	.64	1.0	58.	1.31	20.
24	.016	.009	.017	1.76	.27	1.03	7.04	.10	.24	1.2	33.	.32	42.

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Table 4l - Continued

(d) Aircraft Motion-Variable Root-Mean-Square Values

Segment	ξ_{n_x} (g)	ξ_{n_y} (g)	ξ_{n_z} (g)	ξ_p (deg/sec)	ξ_q (deg/sec)	ξ_r (deg/sec)	ξ_ϕ (deg)	ξ_θ (deg)	ξ_γ (deg)	ξ_{V_i} (kt)	ξ_h (m)	$\xi_{\dot{h}}$ (m/sec)	Δt (sec)
1	.093	.022	.148	4.52	1.92	2.56	26.67	4.33	.70	160.5	3235.	1.25	43.
2	.036	.002	.015	.41	.22	.15	.22	2.24	.41	157.9	3254.	.73	33.
3	.042	.006	.015	1.77	.39	.86	9.70	3.01	.48	164.5	3218.	.91	42.
4	.079	.008	.025	.40	.27	.14	.78	.57	1.56	197.5	3165.	3.30	33.
5	.041	.011	.046	3.95	.72	1.46	14.10	2.97	.86	166.6	3078.	1.57	43.
6	.019	.408	7.750	3.26	41.43	.29	2.93	3.20	.01	.2	3.	.85	41.
7	.047	.028	.123	3.03	1.35	1.90	25.69	2.09	1.07	200.4	2973.	2.36	45.
8	.068	.011	.059	.49	.38	.18	1.86	1.59	2.18	183.0	3046.	4.60	34.
9	.071	.024	.169	5.33	2.09	2.61	27.27	3.15	.87	163.2	3051.	1.55	39.
10	.185	.008	.100	.36	.60	.25	3.60	11.71	8.50	193.3	2805.	17.49	27.
11	.106	.018	.054	2.92	1.09	2.19	17.70	5.18	2.36	140.0	2465.	3.46	43.
12	.064	.007	.097	.43	.67	.14	.43	2.36	2.87	196.9	2209.	5.56	45.
13	.112	.025	.226	4.63	2.77	3.03	31.23	4.39	1.95	163.5	2088.	3.38	64.
14	.074	.007	.071	.45	.69	.26	.87	5.27	6.78	140.4	1864.	9.64	40.
15	.120	.022	.242	3.28	3.33	3.50	32.66	4.93	1.12	149.6	1531.	1.67	47.
16	.092	.006	.109	.41	.76	.15	1.03	2.35	2.86	186.9	1579.	4.99	33.
17	.053	.023	.126	5.00	1.69	2.45	22.05	2.77	1.11	159.8	1443.	1.78	38.
18	.024	.188	8.550	1.16	22.54	.06	1.02	1.98	.01	.1	3.	.94	52.
19	.040	.008	.028	.35	.28	.18	1.33	1.55	3.04	155.6	1328.	4.71	23.
20	.071	.013	.104	3.43	1.55	2.36	22.47	3.35	.73	158.5	1292.	1.16	44.
21	.114	.006	.130	.63	1.14	.16	.92	3.61	3.63	171.8	1509.	6.10	32.
22	.090	.021	.186	4.74	2.48	2.96	28.69	2.62	1.94	161.3	1372.	3.13	59.
23	.118	.011	.070	.40	.63	.05	.32	6.68	4.69	202.0	1226.	9.35	20.
24	.092	.009	.017	1.80	.50	1.40	10.97	4.98	2.25	135.8	1023.	2.97	42.

Table 4I - Continued

(e) Aircraft Motion-Variable Maximum Deviations

Segment	$\uparrow n_x$ (g)	$\uparrow n_y$ (g)	$\uparrow n_z$ (g)	$\uparrow p$ (deg/sec)	$\uparrow q$ (deg/sec)	$\uparrow r$ (deg/sec)	$\uparrow \phi$ (deg)	$\uparrow \theta$ (deg)	$\uparrow \gamma$ (deg)	$\uparrow V_i$ (kt)	$\uparrow h$ (m)	$\uparrow \dot{h}$ (m/sec)	Δt (sec)
1	.129	-.107	-.385	19.70	4.36	5.82	37.60	5.12	-1.34	164.1	3254.	-2.47	43.
2	.048	-.009	.103	.90	.86	-.22	-.80	2.62	.80	159.3	3307.	1.31	33.
3	.054	-.027	.048	7.20	.86	1.66	14.60	3.26	-.80	168.3	3254.	-1.46	42.
4	-.109	.018	.088	.55	.70	-.36	-1.70	-.86	-2.26	207.3	3239.	-4.63	33.
5	.058	.035	-.128	-10.95	1.48	2.62	24.30	3.38	-1.50	168.9	3132.	-2.74	43.
6	-.074	-.019	-.408	-8.90	3.26	3.42	42.50	-4.16	-5.02	204.9	3071.	-9.85	41.
7	.070	-.051	-.325	8.15	2.78	3.10	38.70	3.20	-1.98	212.1	3010.	-4.48	45.
8	-.110	-.027	.228	1.70	-1.66	-.36	-3.20	2.44	3.40	206.4	3109.	7.16	34.
9	.118	-.096	-.428	-20.55	4.38	5.18	40.90	4.70	-1.64	168.6	3071.	-2.93	39.
10	-.226	-.024	.260	.95	3.56	-.38	-5.10	-13.34	-9.98	201.6	3010.	-20.57	27.
11	.134	-.057	-.128	-9.65	2.14	3.88	25.90	5.66	-3.24	142.5	2522.	-4.72	43.
12	-.096	-.027	.365	1.35	2.78	-.84	-1.10	-7.10	-7.24	211.2	2278.	-13.66	45.
13	.158	.067	-.528	-13.35	5.34	5.18	45.90	5.50	-5.32	180.0	2156.	-9.36	64.
14	-.118	.011	-.188	.95	2.30	.38	1.70	-7.68	-9.82	149.7	2035.	-13.41	40.
15	.158	-.051	-.448	8.95	5.66	5.32	45.10	5.78	-1.98	152.1	1600.	-3.02	47.
16	-.133	-.016	.388	.95	-2.78	.34	1.80	-5.66	-6.14	204.0	1608.	-10.30	33.
17	.098	-.115	-.328	19.65	4.32	5.98	35.30	3.58	-2.14	165.9	1486.	-3.51	38.
18	-.138	-.024	.408	-10.15	-3.10	2.14	23.20	-4.54	-4.70	208.8	1486.	-8.38	52.
19	-.056	.018	.185	.80	1.12	-.38	-2.70	-1.98	-3.42	158.4	1410.	-5.43	23.
20	.125	-.043	-.248	-11.25	2.78	3.90	33.60	3.90	-1.34	164.1	1303.	-2.26	44.
21	-.166	.017	.468	2.55	-4.70	-.48	-2.70	-7.58	-5.92	207.3	1600.	-8.29	32.
22	.146	.058	-.405	-11.60	4.38	4.54	41.10	3.90	-4.16	170.4	1463.	-6.68	59.
23	-.138	.027	-.225	.95	1.80	-.22	-1.80	-7.40	-5.18	204.6	1349.	-10.33	20.
24	.133	.035	.048	6.40	1.02	2.78	15.50	5.28	-2.78	137.7	1105.	-3.69	42.

Table 41 -Concluded

(f) Passenger Response Data

Seat	1	2	3	4	5	6	7	8	9	10		
Subject	25	4	12	9	27	14	10	15	6	22		
Segment											Mean	Std. Dev.
1	3	2	5	5	5	5	3	3	3	5	3.90	1.20
2	1	1	1	1	1	1	1	1	2	1	1.10	0.32
3	1	1	1	1	5	2	1	1	2	1	1.60	1.26
4	1	2	2	1	5	2	2	2	2	1	2.00	1.15
5	2	2	2	3	5	4	2	3	2	2	2.70	1.06
6	5	4	6	5	5	7	3	4	5	6	5.00	1.15
7	2	1	2	3	5	6	2	2	4	4	3.10	1.60
8	2	2	5	3	5	4	3	2	3	5	3.40	1.26
9	5	2	6	5	5	5	3	5	5	6	4.70	1.25
10	5	5	6	6	6	5	4	5	5	6	5.30	0.67
11	2	1	4	3	5	2	2	3	4	5	3.10	1.37
12	3	2	5	5	5	5	4	2	5	5	4.10	1.29
13	6	3	6	5	6	6	4	5	6	6	5.30	1.06
14	2	2	2	3	5	6	3	4	4	4	3.50	1.35
15	5	1	5	3	5	5	3	3	4	4	3.80	1.32
16	2	5	6	6	5	4	4	4	5	5	4.60	1.17
17	3	2	6	5	6	5	4	6	4	5	4.60	1.35
18	3	3	5	5	5	6	5	3	5	6	4.60	1.17
19	1	1	3	3	2	4	1	1	2	2	2.00	1.05
20	1	1	3	1	5	4	2	2	2	3	2.40	1.35
21	5	5	6	6	5	5	4	3	5	5	4.90	0.88
22	5	3	3	5	5	5	3	6	4	5	4.40	1.07
23	3	2	3	5	3	5	3	2	4	4	3.40	1.07
24	2	1	2	2	4	2	1	1	2	2	1.90	0.88
Mean	2.92	2.25	3.96	3.75	4.71	4.38	2.79	3.04	3.71	4.08	3.56	
Std. Dev.	1.61	1.33	1.81	1.70	1.16	1.56	1.14	1.55	1.30	1.72		1.65

Table 42 - Data From Maneuver Flight 4

TIFS Flight 345

(a) Aircraft Motion-Variable Mean Values

September 11, 1974

Segment	μ_{n_x} (g)	μ_{n_y} (g)	μ_{n_z} (g)	μ_p (deg/sec)	μ_q (deg/sec)	μ_r (deg/sec)	μ_ϕ (deg)	μ_θ (deg)	μ_γ (deg)	μ_{V_i} (kt)	μ_h (m)	$\mu_{\dot{h}}$ (m/sec)	Δt (sec)
1	.079	-.006	-.111	.37	1.54	1.96	20.79	3.63	-.95	162.7	3197.	-1.69	43.
2	.029	-.001	.006	.48	.22	.10	.75	2.65	.52	157.7	3194.	.86	33.
3	.045	-.001	-.012	.46	.41	.81	8.15	3.28	-.25	165.4	3149.	-.48	42.
4	-.055	.005	.007	.48	.26	.25	1.96	-.06	-1.00	196.0	3177.	-2.13	33.
5	.050	.002	-.027	.47	.61	-.44	-5.22	3.47	-.30	166.0	3160.	-.56	43.
6	-.035	.004	-.097	.43	1.27	1.59	19.05	.18	-1.76	191.8	3139.	-3.52	41.
7	.038	-.008	-.088	.46	1.08	1.58	20.51	1.30	-.02	199.2	3087.	-.10	45.
8	-.030	-.001	.024	.49	.17	.24	1.84	2.01	2.19	180.2	3289.	4.51	34.
9	.048	-.008	-.152	.34	1.96	2.14	22.02	2.72	-1.07	164.2	3285.	-1.89	39.
10	-.181	.009	.076	.34	-.01	.01	-.91	-10.44	-4.23	190.5	2924.	-18.78	27.
11	.098	-.004	-.049	.25	1.14	1.40	16.17	6.10	-1.95	139.4	2563.	-2.85	43.
12	-.056	.008	.024	.46	.15	.13	.55	-.79	-2.25	194.4	2470.	-4.41	45.
13	.121	-.006	-.156	.37	2.19	.66	7.18	5.59	-.35	159.4	2388.	-.59	64.
14	-.051	.007	.015	.48	.11	.37	1.83	-1.40	-5.10	137.5	2248.	-7.23	40.
15	.134	-.017	-.165	.10	2.43	2.74	26.47	6.26	-.17	151.4	2048.	-.27	47.
16	-.041	.008	.048	.39	.06	.10	.37	-1.53	-1.97	185.1	2171.	-3.63	33.
17	.036	.001	-.073	.41	1.13	1.43	14.34	1.64	-2.23	164.0	1872.	-3.69	36.
18	-.050	-.004	-.011	.40	.52	1.02	10.96	-1.75	-2.11	200.9	1743.	-4.10	52.
19	-.063	.007	.016	.38	.24	.17	.56	-2.33	-4.22	163.3	1442.	-6.62	23.
20	.070	-.007	-.087	.34	1.32	1.75	17.62	3.90	-.34	166.3	1339.	-.58	44.
21	-.102	.008	.042	.43	.06	-.13	-1.09	.71	.92	176.3	1513.	2.18	32.
22	.092	.002	-.133	.39	1.92	.29	3.14	3.80	-.75	168.7	1396.	-1.28	59.
23	-.104	.004	-.012	.37	.44	.12	.80	-5.73	-4.13	207.7	1371.	-8.55	20.
24	.061	.012	-.016	.39	.26	.27	1.33	5.10	-1.77	145.6	1255.	-2.49	0.

Table 42- Continued

(b) Aircraft Motion-Variable Mean Deviations

Segment	λ_{n_x} (g)	λ_{n_y} (g)	λ_{n_z} (g)	λ_p (deg/sec)	λ_q (deg/sec)	λ_r (deg/sec)	λ_ϕ (deg)	λ_θ (deg)	λ_γ (deg)	λ_{v_i} (kt)	λ_h (m)	$\lambda_{\dot{h}}$ (m/sec)	Δt (sec)
1	.079	.011	.131	1.88	1.59	2.08	20.79	3.83	.95	162.7	3197.	1.69	43.
2	.029	.002	.010	.48	.22	.10	.75	2.65	.52	157.7	3194.	.86	33.
3	.045	.004	.020	1.04	.42	.83	8.18	3.28	.25	165.4	3149.	.48	42.
4	.056	.008	.023	.48	.29	.25	1.96	.49	1.00	196.0	3177.	2.13	33.
5	.050	.009	.037	2.48	.61	1.08	10.60	3.47	.30	166.0	3160.	.56	43.
6	.035	.010	.151	2.20	1.44	1.59	19.05	1.56	1.91	191.8	3139.	3.81	41.
7	.038	.009	.093	1.72	1.08	1.58	20.51	2.00	.86	199.2	3087.	1.84	45.
8	.041	.005	.046	.49	.30	.24	1.84	2.03	2.42	180.2	3289.	4.93	34.
9	.048	.014	.168	2.39	1.99	2.21	22.02	2.72	1.10	164.2	3285.	1.94	39.
10	.181	.011	.076	.45	.37	.10	1.09	10.44	9.23	190.5	2924.	18.78	27.
11	.098	.011	.068	1.57	1.16	2.01	16.17	6.10	1.95	139.4	2563.	2.85	43.
12	.063	.011	.057	.49	.45	.18	.56	1.09	2.25	194.4	2470.	4.41	45.
13	.121	.016	.172	2.94	2.20	2.51	24.96	5.59	.54	159.4	2388.	.89	64.
14	.053	.007	.050	.48	.50	.37	1.83	3.68	5.10	137.5	2248.	7.23	40.
15	.134	.018	.175	1.93	2.43	2.74	26.47	6.26	.51	151.4	2048.	.78	47.
16	.068	.009	.072	.42	.54	.10	.46	2.05	2.56	185.1	2171.	4.74	33.
17	.036	.011	.094	2.34	1.15	1.66	14.98	1.64	2.23	164.0	1872.	3.69	38.
18	.062	.016	.078	1.42	.75	1.05	11.27	1.80	2.25	200.9	1743.	4.38	52.
19	.063	.008	.025	.45	.31	.19	.69	2.33	4.22	163.3	1442.	6.82	23.
20	.070	.011	.096	1.83	1.32	1.83	17.83	3.90	.49	166.3	1339.	.81	44.
21	.107	.012	.079	.50	.66	.16	1.09	3.58	3.39	176.3	1513.	5.83	32.
22	.092	.018	.148	2.99	1.92	2.33	23.12	3.80	.78	168.7	1396.	1.31	59.
23	.104	.007	.042	.45	.44	.12	.85	5.73	4.18	207.7	1371.	8.55	20.
24	.061	.013	.046	.81	.35	.28	1.33	5.18	1.77	145.6	1255.	2.49	6.

Table 42 - Continued

(c) Aircraft Motion-Variable Standard Deviations

Segment	σ_{n_x} (g)	σ_{n_y} (g)	σ_{n_z} (g)	σ_p (deg/sec)	σ_q (deg/sec)	σ_r (deg/sec)	σ_ϕ (deg)	σ_θ (deg)	σ_γ (deg)	σ_{v_i} (kt)	σ_h (m)	$\sigma_{\dot{h}}$ (m/sec)	Δt (sec)
1	.018	.020	.123	4.59	1.27	1.80	16.83	.73	.64	1.2	28.	1.11	43.
2	.005	.003	.015	.17	.12	.05	.19	.14	.19	1.4	8.	.32	33.
3	.003	.006	.020	1.79	.22	.71	7.00	.23	.13	1.2	10.	.23	42.
4	.042	.007	.040	.11	.28	.05	.31	.51	.62	7.9	26.	1.30	33.
5	.007	.013	.042	4.02	.43	1.39	13.53	.23	.18	1.4	9.	.32	43.
6	.021	.010	.179	3.57	1.39	1.44	17.86	1.91	1.78	9.3	37.	3.50	41.
7	.012	.007	.099	3.06	.86	1.19	15.29	1.83	.90	3.4	15.	1.94	45.
8	.046	.007	.061	.18	.40	.09	.28	1.16	1.73	15.6	49.	3.59	34.
9	.031	.021	.171	5.43	1.70	1.99	19.95	.94	.95	1.5	37.	1.65	39.
10	.065	.010	.080	.40	.48	.12	1.06	2.49	2.50	4.2	165.	5.18	27.
11	.016	.014	.071	3.03	.91	1.68	12.61	.27	.56	1.3	39.	.80	43.
12	.044	.011	.094	.30	.67	.15	.25	1.93	1.99	9.9	48.	3.68	45.
13	.035	.018	.164	4.95	1.76	3.04	30.21	.56	.56	2.2	18.	.92	64.
14	.034	.006	.064	.19	.67	.09	.25	3.67	2.53	3.1	98.	3.62	40.
15	.038	.014	.160	3.38	1.95	1.99	18.42	.59	.57	1.6	12.	.88	47.
16	.065	.008	.110	.25	.79	.08	.36	2.69	3.08	5.1	36.	5.62	33.
17	.023	.023	.106	5.08	1.10	1.90	16.23	.54	.47	2.3	39.	.76	38.
18	.058	.021	.107	2.60	.77	1.03	11.28	1.67	2.03	8.5	66.	3.74	52.
19	.014	.008	.040	.40	.28	.12	.54	.18	.41	1.1	48.	.68	23.
20	.012	.012	.097	3.48	1.13	1.74	16.26	.46	.51	1.8	10.	.84	44.
21	.067	.013	.131	.40	1.18	.16	.43	3.63	3.39	23.8	37.	5.59	32.
22	.032	.022	.139	4.85	1.53	2.91	28.77	.52	.60	2.3	25.	.99	59.
23	.015	.008	.076	.37	.46	.07	.35	.77	.49	1.2	51.	1.03	20.
24	.017	.008	.067	.96	.32	.17	.48	.10	.40	1.0	7.	.57	6.

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Table42 - Continued

(d) Aircraft Motion-Variable Root-Mean-Square Values

Segment	ξ_{n_x} (g)	ξ_{n_y} (g)	ξ_{n_z} (g)	ξ_p (deg/sec)	ξ_q (deg/sec)	ξ_r (deg/sec)	ξ_ϕ (deg)	ξ_θ (deg)	ξ_γ (deg)	ξ_{v_i} (kt)	ξ_h (m)	$\xi_{\dot{h}}$ (m/sec)	Δt (sec)
1	.080	.021	.165	4.61	1.99	2.68	26.75	3.90	1.15	162.7	3197.	2.02	43.
2	.030	.003	.016	.51	.25	.12	.77	2.65	.55	157.7	3194.	.92	33.
3	.045	.007	.024	1.85	.46	1.08	10.74	3.29	.28	165.4	3149.	.53	42.
4	.070	.009	.041	.49	.38	.26	1.98	.52	1.18	196.2	3177.	2.50	33.
5	.050	.013	.050	4.04	.74	1.46	14.50	3.47	.35	166.0	3160.	.64	43.
6	.016	.333	7.850	3.44	40.91	.31	2.98	3.32	.02	.2	3.	.92	41.
7	.040	.011	.133	3.10	1.38	1.98	25.58	2.25	.90	199.3	3087.	1.95	45.
8	.055	.007	.065	.52	.43	.26	1.86	2.32	2.79	180.8	3289.	5.77	34.
9	.057	.023	.229	5.44	2.59	2.92	29.72	2.88	1.43	164.2	3285.	2.51	39.
10	.193	.013	.110	.52	.48	.12	1.40	10.73	9.56	190.5	2929.	19.48	27.
11	.100	.015	.086	3.04	1.46	2.54	20.50	6.10	2.03	139.4	2563.	2.96	43.
12	.071	.013	.097	.55	.68	.21	.60	2.08	3.00	194.6	2471.	5.74	45.
13	.126	.019	.226	4.96	2.81	3.11	31.06	5.62	.66	159.4	2389.	1.09	64.
14	.061	.009	.066	.51	.68	.36	1.85	3.93	5.69	137.6	2250.	8.09	40.
15	.139	.022	.230	3.38	3.11	3.38	32.25	6.29	.60	151.4	2048.	.92	47.
16	.077	.011	.120	.46	.79	.12	.51	3.09	3.66	185.1	2172.	6.69	33.
17	.042	.023	.129	5.10	1.58	2.37	21.66	1.73	2.28	164.0	1872.	3.77	38.
18	.073	.395	8.750	1.44	24.86	.06	1.23	2.29	.05	.2	3.	.99	52.
19	.064	.011	.043	.55	.37	.21	.77	2.33	4.24	163.3	1443.	6.85	23.
20	.071	.014	.130	3.50	1.74	2.47	23.98	3.93	.62	166.3	1339.	1.02	44.
21	.122	.015	.138	.59	1.18	.20	1.17	3.70	3.51	178.0	1514.	6.00	32.
22	.097	.022	.192	4.86	2.46	2.93	28.94	3.83	.96	168.7	1396.	1.61	59.
23	.106	.009	.077	.52	.64	.14	.88	5.78	4.21	207.7	1372.	8.61	20.
24	.064	.015	.068	1.03	.41	.32	1.42	5.18	1.81	145.6	1255.	2.55	6.

Table 42- Continued

(e) Aircraft Motion-Variable Maximum Deviations

Segment	$\uparrow n_x$ (g)	$\uparrow n_y$ (g)	$\uparrow n_z$ (g)	$\uparrow p$ (deg/sec)	$\uparrow q$ (deg/sec)	$\uparrow r$ (deg/sec)	$\uparrow \phi$ (deg)	$\uparrow \theta$ (deg)	$\uparrow \gamma$ (deg)	$\uparrow v_i$ (kt)	$\uparrow h$ (m)	$\uparrow \dot{h}$ (m/sec)	Δt (sec)
1	.119	-.111	-.405	20.00	4.56	6.20	37.40	4.84	-2.18	167.1	3239.	-3.84	43.
2	.041	-.011	.085	.90	.64	.24	1.20	2.82	.74	160.5	3216.	1.22	33.
3	.053	-.025	-.058	7.35	.90	2.00	15.80	3.54	-.48	168.0	3170.	-.88	42.
4	-.112	.018	-.240	.70	1.98	.36	2.50	.88	-2.06	205.8	3223.	-4.45	33.
5	.063	-.037	-.128	-11.15	1.62	2.88	23.80	3.82	-.84	168.0	3178.	-1.52	43.
6	-.070	.024	-.415	-8.95	3.46	3.54	41.80	-3.94	-5.28	204.9	3200.	-10.39	41.
7	.059	-.026	-.338	8.40	2.84	3.20	38.40	3.64	-1.62	208.2	3124.	-3.54	45.
8	-.104	-.019	.235	1.10	-1.72	.46	2.40	3.20	4.14	201.3	3353.	8.81	34.
9	.113	-.100	-.513	-20.80	5.64	5.96	44.10	4.40	-2.76	167.7	3330.	-4.88	39.
10	-.249	.034	.293	1.70	2.20	.26	-2.50	-12.56	-11.66	197.7	3170.	-23.68	27.
11	.129	.055	-.193	-9.95	2.80	4.36	29.70	6.80	-2.76	142.5	2637.	-4.02	43.
12	-.101	.040	.340	1.65	2.82	.82	1.10	-6.66	-7.42	208.2	2545.	-13.90	45.
13	.172	-.044	-.505	-13.70	5.28	5.24	45.10	6.48	-1.84	165.0	2416.	-2.99	64.
14	-.102	.021	-.160	1.10	-2.00	.58	2.30	5.10	-8.22	143.1	2370.	-11.70	40.
15	.194	-.065	-.438	6.95	5.22	5.08	44.40	7.10	1.26	154.5	2073.	1.98	47.
16	-.127	.024	.420	.95	-2.76	.32	-1.40	-7.32	-7.80	194.7	2225.	-14.20	33.
17	.098	-.104	-.340	20.00	4.14	6.02	34.40	2.44	-3.48	168.6	1943.	-5.82	38.
18	-.154	-.081	.445	-10.25	-3.24	2.64	25.70	-5.80	-6.36	216.3	1829.	-11.73	52.
19	-.084	.049	.215	1.95	-1.12	.40	1.90	-2.74	-4.74	166.5	1532.	-7.71	23.
20	.108	-.039	-.283	-11.25	3.18	4.14	35.30	4.50	-1.24	172.5	1364.	-2.04	44.
21	-.184	.046	.478	1.70	-4.62	-.62	-2.20	-6.96	-5.94	213.9	1570.	-8.69	32.
22	.145	.064	-.458	-12.50	4.24	4.76	42.00	4.58	-1.88	175.5	1433.	-3.11	59.
23	-.124	.023	.273	1.30	1.86	.32	1.20	-6.86	-4.62	209.7	1471.	-9.42	20.
24	.117	.031	-.230	2.60	.84	.58	2.50	5.36	-2.22	147.6	1273.	-3.11	6.

Table 42 -Concluded

(f) Passenger Response Data

Seat	1	2	3	4	5	6	7	8	9	10		
Subject	3	5	22	8	10	26	12	24	13	27		
Segment											Mean	Std. Dev.
1	1	3	4	2	2	3	2	4	5	5	3.00	1.41
2	1	2	1	1	1	1	1	2	2	1	1.30	0.48
3	1	2	1	1	2	2	1	2	2	3	1.70	0.67
4	1	2	1	1	3	2	3	2	3	5	2.30	1.25
5	1	2	2	1	3	2	4	2	4	5	2.60	1.35
6	2	1	5	3	4	4	6	5	5	6	4.10	1.66
7	2	2	4	2	3	3	4	4	4	5	3.30	1.06
8	1	2	2	2	3	2	5	3	4	5	2.90	1.37
9	3	4	5	4	4	5	5	5	5	6	4.60	0.84
10	5	4	4	4	3	4	6	5	6	6	4.70	1.06
11	2	2	2	2	3	2	3	2	3	5	2.60	0.97
12	3	3	4	5	3	4	6	4	5	5	4.20	1.03
13	4	3	5	4	5	5	5	5	5	5	4.60	0.70
14	2	2	2	3	3	2	2	2	5	3	2.60	0.97
15	2	3	4	5	5	3	5	4	5	3	3.90	1.10
16	2	3	5	5	4	5	7	5	7	5	4.80	1.55
17	2	2	6	4	3	3	4	4	3	5	3.60	1.26
18	5	4	5	5	3	5	6	6	6	6	5.10	0.99
19	1	2	1	2	2	2	2	3	5	6	2.60	1.65
20	1	2	3	3	2	4	3	3	4	4	2.90	0.99
21	2	3	5	5	4	4	6	6	6	6	4.70	1.42
22	2	2	4	4	4	4	4	5	5	5	3.90	1.10
23	2	2	3	4	3	4	3	5	4	5	3.50	1.08
24	2	3	2	2	3	3	2	1	2	2	2.20	0.63
Mean	2.08	2.50	3.33	3.08	3.13	3.21	3.96	3.71	4.38	4.67	3.40	
Std. Dev.	1.18	0.78	1.58	1.44	0.95	1.22	1.76	1.46	1.35	1.34		1.51

Table 43- Data From Maneuver Flight 5

TIFS Flight 360 — (a) Aircraft Motion-Variable Mean Values — September 17, 1974

Segment	μ_n (g)	μ_{n_+} (g)	μ_{n_-} (g)	μ_p (deg/sec)	μ_q (deg/sec)	μ_r (deg/sec)	μ_ϕ (deg)	μ_θ (deg)	μ_γ (deg)	μ_{V_t} (kt)	μ_h (m)	$\mu_{\dot{h}}$ (m/sec)	Δt (sec)
1	.010	.007	.006	.47	.16	-.06	-1.05	1.65	-3.58	148.0	2373.	-5.47	33.
2	.031	-.010	-.017	.46	.40	.86	10.49	1.56	.01	206.4	2057.	-.02	39.
3	-.075	.004	.045	.33	-.06	-.13	-.75	1.32	1.22	160.0	2149.	2.87	38.
4	.078	.001	-.056	.46	1.05	.29	3.70	4.58	.10	164.6	1982.	.13	55.
5	-.004	.020	-.032	.51	.31	.06	-.01	-.62	-7.12	154.6	1609.	-10.90	26.
6	-.069	-.002	-.033	.34	.73	1.05	12.40	3.72	2.74	171.8	1869.	4.83	33.
7	.073	-.012	-.064	.27	1.10	1.88	18.84	4.29	-.09	166.7	1931.	-.17	33.
8	-.073	-.003	.034	.48	.05	.25	1.71	-.77	-1.47	199.3	1890.	-2.61	36.
9	.049	-.013	-.140	.27	1.89	2.08	20.62	2.85	-1.31	167.0	1640.	-2.19	43.
10	-.038	.000	.008	.41	.14	-.04	-.73	-1.04	.66	200.0	1712.	1.26	31.
11	.044	-.014	-.182	.50	1.89	1.66	24.27	2.02	.93	204.7	1899.	1.88	41.
12	-.035	.003	.052	.46	-.05	.02	.17	2.75	1.68	159.9	2385.	3.72	39.
13	.098	.001	-.101	.56	1.59	-.98	-10.04	4.96	-.16	158.8	2340.	-.29	39.
14	-.143	-.006	-.006	.40	.35	-.11	-1.81	-6.75	-6.38	202.4	2099.	-12.53	30.
15	.072	.009	-.061	.40	1.12	1.42	14.67	3.10	-6.05	137.2	1486.	-8.13	42.
16	-.066	.000	.026	.46	.18	.20	1.10	.28	-.44	189.3	1191.	-.36	34.
17	.067	-.010	-.048	.28	.93	1.38	13.29	3.94	.15	164.8	1181.	.22	37.
18	-.096	-.005	-.037	.33	.90	1.32	12.93	1.17	1.23	177.4	1378.	2.87	34.
19	.093	-.000	.009	.49	.14	-.23	-1.79	5.07	.36	145.4	1344.	.51	36.
20	.098	-.013	-.130	.36	1.08	2.04	20.43	4.67	-.29	164.4	1357.	-.48	42.
21	-.069	.005	.011	.55	.15	-.01	.78	4.86	4.18	181.4	1565.	7.83	33.
22	.048	.004	-.054	.45	.97	-.09	-.11	3.46	-.22	164.5	1591.	-.39	47.
23	-.053	.007	-.024	.46	.32	-.34	-4.08	-1.17	-2.15	205.3	1475.	-4.42	34.
24	.026	-.008	-.041	.31	.65	1.08	13.32	2.31	1.37	203.1	1576.	2.74	41.

Table 43- Continued

(b) Aircraft Motion-Variable Mean Deviations

Segment	λ_{n_x} (g)	λ_{n_y} (g)	λ_{n_z} (g)	λ_p (deg/sec)	λ_q (deg/sec)	λ_r (deg/sec)	λ_ϕ (deg)	λ_θ (deg)	λ_γ (deg)	λ_{v_i} (kt)	λ_h (m)	$\lambda_{\dot{h}}$ (m/sec)	Δt (sec)
1	.011	.007	.008	.47	.17	.06	1.05	1.65	3.58	148.0	2373.	5.47	33.
2	.031	.011	.026	1.43	.41	.91	10.66	1.50	.26	206.4	2057.	.53	39.
3	.086	.005	.060	.48	.43	.16	.94	4.05	3.66	180.0	2149.	6.64	38.
4	.078	.014	.072	2.32	1.06	1.94	17.65	4.56	.24	164.6	1982.	.38	55.
5	.024	.020	.037	.51	.31	.12	.15	1.02	7.12	154.6	1609.	10.90	26.
6	.090	.007	.074	2.10	.78	1.30	13.37	3.72	2.74	171.8	1869.	4.83	33.
7	.073	.017	.087	1.95	1.13	1.99	18.84	4.29	.20	166.7	1931.	.34	33.
8	.073	.007	.040	.49	.26	.25	1.71	.88	1.67	199.3	1890.	3.22	36.
9	.052	.018	.160	2.29	1.93	2.18	21.08	2.85	1.33	167.0	1640.	2.21	43.
10	.038	.002	.015	.51	.24	.11	1.79	1.07	.66	200.0	1712.	1.26	31.
11	.044	.015	.194	2.67	1.90	1.86	24.27	2.03	.99	204.7	1899.	2.00	41.
12	.068	.004	.066	.46	.55	.08	.39	4.95	4.87	159.9	2385.	8.18	39.
13	.098	.018	.139	4.57	1.61	1.99	17.97	4.96	.40	158.8	2340.	.65	39.
14	.143	.009	.059	.43	.44	.12	1.81	8.75	6.08	202.4	2099.	12.53	30.
15	.072	.019	.077	1.77	1.16	2.17	14.67	3.10	6.05	137.2	1486.	8.13	42.
16	.077	.006	.102	.46	.80	.20	1.10	3.50	3.44	189.3	1191.	6.21	34.
17	.067	.015	.062	2.05	.97	1.84	16.23	3.94	.41	164.8	1181.	.65	37.
18	.096	.007	.105	2.40	1.20	1.44	14.76	3.77	3.94	177.4	1378.	6.86	34.
19	.093	.002	.012	.49	.20	.23	1.70	6.07	.36	145.4	1344.	.51	36.
20	.098	.016	.151	2.29	1.90	2.25	21.80	4.67	.59	164.4	1357.	.94	42.
21	.080	.006	.083	.55	.56	.11	1.41	4.90	4.54	181.4	1565.	8.33	33.
22	.048	.014	.065	2.70	.98	1.74	15.50	3.46	.29	164.5	1591.	.48	47.
23	.056	.007	.034	.48	.32	.34	4.08	1.67	2.36	205.3	1475.	4.82	34.
24	.026	.009	.048	1.60	.66	1.18	14.16	2.31	1.37	203.1	1576.	2.74	41.

Table 43- Continued

(c) Aircraft Motion-Variable Standard Deviations

Segment	σ_{n_x} (g)	σ_{n_y} (g)	σ_{n_z} (g)	σ_p (deg/sec)	σ_q (deg/sec)	σ_r (deg/sec)	σ_ϕ (deg)	σ_θ (deg)	σ_γ (deg)	σ_{v_i} (kt)	σ_h (m)	$\sigma_{\dot{h}}$ (m/sec)	Δt (sec)
1	.012	.005	.009	.09	.10	.06	.09	.05	.32	.8	55.	.46	33.
2	.005	.010	.027	2.98	.27	.84	9.66	.17	.30	1.9	7.	.64	39.
3	.070	.005	.096	.42	.72	.22	1.48	3.92	3.56	23.9	49.	6.18	38.
4	.018	.021	.063	4.94	.66	2.30	21.08	.44	.25	2.1	10.	.42	55.
5	.029	.009	.066	.16	.37	.12	.19	.91	1.51	2.7	81.	2.27	26.
6	.081	.008	.087	4.29	.72	1.41	14.43	.62	.65	26.0	54.	1.67	33.
7	.013	.019	.082	4.28	.83	1.53	13.28	.50	.28	1.3	9.	.46	33.
8	.034	.008	.057	.27	.41	.08	.17	1.58	1.69	12.4	29.	3.14	36.
9	.040	.022	.175	5.41	1.90	2.19	21.13	1.00	1.02	2.3	37.	1.69	43.
10	.004	.003	.032	.59	.24	.14	1.52	.30	.20	1.5	11.	.41	31.
11	.018	.013	.197	5.46	1.68	1.70	21.92	.94	.65	2.1	27.	1.34	41.
12	.065	.005	.098	.18	.95	.10	.41	4.48	4.71	23.5	59.	7.76	39.
13	.033	.030	.172	8.15	1.62	2.67	23.17	.53	.53	.7	9.	.86	39.
14	.038	.008	.113	.23	.69	.07	.21	1.12	.73	3.9	124.	1.52	30.
15	.025	.027	.084	3.68	1.17	2.19	13.46	.29	.54	2.6	101.	.72	42.
16	.054	.008	.166	.16	1.24	.08	.23	3.89	4.01	16.5	32.	2.08	34.
17	.014	.021	.064	4.58	.78	1.80	15.26	.66	.42	.9	8.	.66	37.
18	.047	.009	.136	4.87	1.26	1.70	17.26	4.01	4.06	24.1	44.	6.88	34.
19	.008	.003	.012	.11	.10	.04	.11	.05	.23	1.1	7.	.33	36.
20	.027	.019	.168	5.06	1.82	2.21	20.71	.82	.67	1.4	14.	1.07	42.
21	.072	.006	.129	.29	.86	.12	1.31	2.13	2.40	26.1	83.	4.50	33.
22	.016	.018	.063	4.99	.69	2.17	19.85	.29	.29	1.4	7.	.47	47.
23	.033	.004	.065	.23	.35	.06	.70	1.25	1.11	3.2	51.	2.25	34.
24	.009	.007	.046	3.48	.45	1.07	12.62	.39	.16	.9	34.	.32	41.

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Table 43- Continued

(d) Aircraft Motion-Variable Root-Mean-Square Values

Segment	ξ_{n_x} (g)	ξ_{n_y} (g)	ξ_{n_z} (g)	ξ_p (deg/sec)	ξ_q (deg/sec)	ξ_r (deg/sec)	ξ_ϕ (deg)	ξ_θ (deg)	ξ_γ (deg)	ξ_{v_i} (kt)	ξ_h (m)	$\xi_{\dot{h}}$ (m/sec)	Δt (sec)
1	.015	.009	.010	.48	.19	.08	1.06	1.65	3.59	148.0	2374.	5.48	33.
2	.031	.014	.032	3.01	.48	1.20	14.26	1.51	.30	206.4	2057.	.64	39.
3	.103	.006	.106	.53	.72	.25	1.66	4.14	3.77	181.6	2150.	6.81	38.
4	.081	.021	.086	4.96	1.24	2.32	21.40	4.58	.27	164.6	1982.	.44	55.
5	.030	.022	.074	.54	.48	.13	.19	1.09	7.27	154.7	1611.	11.13	26.
6	.025	.155	16.550	1.64	29.99	.14	1.63	2.65	.03	.1	4.	.56	33.
7	.074	.023	.104	4.29	1.37	2.43	23.05	4.32	.29	166.7	1931.	.49	33.
8	.080	.009	.067	.55	.42	.26	1.71	1.76	2.24	199.7	1890.	4.21	36.
9	.063	.025	.225	5.41	2.68	3.02	29.53	3.02	1.66	167.0	1640.	2.77	43.
10	.039	.003	.033	.71	.28	.14	1.69	1.08	.69	200.0	1712.	1.33	31.
11	.048	.019	.268	5.49	2.52	2.52	32.70	2.23	1.14	204.7	1900.	2.30	41.
12	.074	.005	.111	.50	.95	.10	.44	5.26	5.00	161.6	2386.	8.60	39.
13	.103	.030	.199	8.17	2.27	2.84	25.26	4.99	.55	158.8	2340.	.91	39.
14	.148	.010	.114	.47	.77	.14	1.82	8.82	6.13	202.5	2103.	12.62	30.
15	.076	.028	.104	3.70	1.62	2.91	19.91	3.12	6.08	137.2	1489.	8.16	42.
16	.086	.008	.168	.48	1.25	.22	1.13	3.90	4.04	190.0	1191.	7.09	34.
17	.068	.023	.080	4.59	1.21	2.27	20.24	4.00	.44	164.8	1181.	.70	37.
18	.047	.448	19.050	4.00	36.34	.14	2.53	3.49	.02	.2	3.	.74	34.
19	.094	.003	.015	.50	.22	.23	1.80	6.07	.43	145.4	1344.	.60	36.
20	.102	.023	.212	5.07	2.61	3.01	29.09	4.74	.73	164.4	1357.	1.17	42.
21	.100	.008	.129	.62	.87	.12	1.53	5.31	4.82	183.2	1568.	9.03	33.
22	.051	.018	.083	5.01	1.19	2.17	19.85	3.47	.37	164.5	1591.	.61	47.
23	.063	.008	.069	.53	.47	.35	4.14	1.71	2.42	205.3	1476.	4.96	34.
24	.028	.011	.062	3.50	.79	1.52	18.34	2.35	1.38	203.1	1576.	2.76	41.

Table 43 - Continued

(e) Aircraft Motion-Variable Maximum Deviations

Segment	$\uparrow n_x$ (g)	$\uparrow n_y$ (g)	$\uparrow n_z$ (g)	$\uparrow p$ (deg/sec)	$\uparrow q$ (deg/sec)	$\uparrow r$ (deg/sec)	$\uparrow \phi$ (deg)	$\uparrow \theta$ (deg)	$\uparrow \gamma$ (deg)	$\uparrow v_i$ (kt)	$\uparrow h$ (m)	$\uparrow \dot{h}$ (m/sec)	Δt (sec)
1	.029	.020	.035	.75	.64	-.28	-1.30	1.80	-4.04	149.7	2477.	-6.04	33.
2	.044	-.061	-.078	13.55	.84	2.06	20.50	1.80	-.58	210.0	2080.	-1.28	39.
3	-.163	.019	.325	-1.35	-2.28	-.72	-5.20	-5.60	-5.38	212.4	2233.	-8.17	38.
4	.112	-.085	-.213	-18.10	2.40	4.42	28.00	5.02	.60	168.3	2004.	.94	55.
5	.076	.031	-.253	1.25	1.84	-.26	-.50	2.98	-8.58	161.7	1753.	-12.89	26.
6	-.162	.029	-.203	16.55	1.84	3.14	30.50	4.74	3.54	210.9	1958.	7.41	33.
7	.102	-.097	-.235	15.50	2.76	4.96	30.30	4.78	-.78	168.9	1951.	-1.34	33.
8	-.114	-.023	.268	1.45	-2.08	.60	2.10	-4.36	-4.94	216.3	1951.	-9.11	36.
9	.114	-.114	-.443	-20.85	4.92	6.10	45.90	4.52	-3.24	171.3	1707.	-5.39	43.
10	-.046	.011	.158	2.50	-1.04	-.32	-3.40	-1.38	1.50	203.1	1737.	2.96	31.
11	.073	-.051	-.595	17.30	4.56	4.08	48.30	3.76	1.80	209.1	1951.	3.63	41.
12	-.126	.015	.350	1.10	3.76	-.34	.90	6.90	6.28	196.5	2469.	12.62	39.
13	.157	-.089	-.513	-25.05	4.54	6.26	40.90	6.14	-1.66	160.8	2377.	-2.74	39.
14	-.183	-.026	-.415	1.00	2.96	-.32	-2.70	-9.70	-7.00	206.1	2316.	-13.81	30.
15	.124	.118	-.265	14.50	5.00	8.30	32.50	3.86	-7.32	143.4	1661.	-9.75	42.
16	-.138	.021	.455	.85	-4.32	.48	1.40	-8.00	-7.98	213.0	1265.	-13.44	34.
17	.098	-.110	-.205	-18.10	2.70	5.18	28.70	4.68	-.74	166.8	1204.	-1.16	37.
18	-.173	-.047	-.448	19.05	4.00	3.86	36.80	-6.70	6.64	211.8	1448.	12.92	34.
19	.125	-.009	.045	.80	.60	-.34	-2.10	6.26	.88	147.6	1372.	1.22	36.
20	.158	-.092	-.493	20.05	5.22	5.92	43.50	5.78	-1.60	168.6	1387.	-2.53	42.
21	-.153	.020	.345	1.40	-3.36	.30	2.60	6.58	6.44	212.4	1699.	13.01	33.
22	.077	-.064	-.175	15.30	2.08	3.88	-28.10	3.84	-.88	167.4	1615.	-1.43	47.
23	-.087	.016	-.253	1.20	1.78	-.54	-5.50	2.48	-2.94	210.0	1577.	-6.07	34.
24	.040	-.031	-.130	-13.20	1.26	2.32	25.80	2.78	1.64	204.9	1646.	3.26	41.

Table 43 -Concluded

(f) Passenger Response Data

Seat	1	2	3	4	5	6	7	8	9	10		
Subject	23	4	27	2	19	22	10	1	30	25		
Segment											Mean	Std. Dev.
1	4	1	3	3	2	1	1	2	2	2	2.10	0.99
2	4	1	5	3	3	2	2	2	2	2	2.60	1.17
3	4	3	5	3	6	4	4	3	3	3	3.80	1.03
4	4	4	5	4	3	5	2	3	2	3	3.50	1.08
5	4	3	6	3	2	3	2	5	3	2	3.30	1.34
6	4	5	5	3	2	5	3	3	2	3	3.50	1.18
7	4	4	4	4	3	5	2	5	2	2	3.50	1.18
8	5	6	3	2	5	3	3	3	2	2	3.40	1.43
9	5	5	5	4	3	6	4	4	3	5	4.40	0.97
10	5	3	5	3	2	3	2	4	2	2	3.10	1.20
11	5	4	5	4	5	5	5	4	4	5	4.60	0.52
12	6	6	5	4	5	5	4	5	3	4	4.70	0.95
13	5	5	6	5	5	6	4	5	4	6	5.10	0.74
14	5	4	5	3	4	5	4	5	4	4	4.30	0.67
15	4	4	5	4	4	5	3	5	2	2	3.80	1.14
16	6	6	5	4	6	5	5	6	3	3	4.90	1.20
17	6	3	5	4	4	2	3	3	2	2	3.40	1.35
18	5	5	5	5	6	5	4	5	2	3	4.50	1.18
19	5	5	3	4	2	1	2	2	2	2	2.80	1.40
20	5	3	5	5	5	5	3	5	3	5	4.40	0.97
21	5	5	5	4	6	5	4	5	4	3	4.60	0.84
22	5	4	3	5	4	2	3	4	2	2	3.40	1.17
23	5	4	3	4	2	2	2	4	2	3	3.10	1.10
24	5	3	3	4	4	3	2	3	2	2	3.10	0.99
Mean	4.79	4.00	4.54	3.79	3.88	3.88	3.04	3.96	2.58	3.00	3.75	
Std. Dev.	0.66	1.35	0.98	0.78	1.45	1.57	1.08	1.16	0.78	1.22		1.30

Table 44- Data From Maneuver Flight 6

TIFS Flight 360

(a) Aircraft Motion-Variable Mean Values

September 17, 1974

Segment	μ_{n_x} (g)	μ_{n_y} (g)	μ_{n_z} (g)	μ_p (deg/sec)	μ_q (deg/sec)	μ_r (deg/sec)	μ_ϕ (deg)	μ_θ (deg)	μ_γ (deg)	μ_{v_i} (kt)	μ_h (m)	$\mu_{\dot{h}}$ (m/sec)	Δt (sec)
1	.023	.008	.009	.51	.17	-.05	-.24	1.74	-3.34	146.9	2434.	-5.11	33.
2	.040	-.014	-.023	.45	.51	1.09	12.81	2.17	.60	205.4	2160.	1.21	39.
3	-.086	.001	.049	.32	-.03	-.01	-.16	.92	.79	179.3	2272.	2.11	38.
4	.063	-.003	-.061	.44	1.08	.51	4.87	4.09	-.28	165.7	2049.	-.49	55.
5	-.007	.020	-.032	.50	.33	-.01	-.80	-1.04	-7.12	155.3	1656.	-10.98	26.
6	-.051	0.000	-.028	.36	.74	1.01	12.13	3.39	2.84	169.7	1875.	4.94	33.
7	.081	-.010	-.060	.27	1.08	1.84	16.84	3.99	-.03	166.7	1964.	-.08	33.
8	-.068	-.005	.034	.43	.37	.28	1.60	-.94	-1.36	198.6	1936.	-2.61	36.
9	.065	-.015	-.136	.23	1.87	2.04	20.22	3.32	-.58	165.5	1775.	-.96	43.
10	-.042	-.001	.009	.39	.15	.09	.15	-.49	.74	196.9	1879.	1.48	31.
11	.042	-.015	-.193	.48	1.96	1.91	24.71	2.54	1.25	203.1	2090.	2.54	41.
12	-.051	.008	.054	.46	-.05	.08	.94	2.97	1.90	160.2	2622.	4.21	39.
13	.085	.000	-.097	.54	1.53	-.84	-9.34	4.38	-.60	158.4	2544.	-1.00	39.
14	-.154	.002	-.013	.39	.40	-.19	-2.44	-9.78	-6.78	202.8	2186.	-14.09	30.
15	.070	.006	-.061	.40	1.16	1.96	14.72	2.96	-6.02	137.5	1510.	-8.12	42.
16	-.026	.002	.029	.41	.16	.25	1.80	1.93	1.36	185.0	1419.	2.90	34.
17	.063	-.014	-.064	.17	1.15	1.74	16.69	5.13	1.21	162.9	1623.	1.92	37.
18	-.096	-.007	-.055	.34	1.06	1.64	15.99	.55	-.02	173.5	1881.	.61	34.
19	.070	-.004	.006	.45	.19	.24	1.15	5.47	-.50	144.1	1698.	-.73	36.
20	.122	-.015	-.158	.24	2.20	2.29	23.60	5.79	.91	161.0	1722.	1.44	42.
21	-.047	-.003	.009	.51	.18	.36	3.48	4.60	4.55	176.9	2005.	8.45	33.
22	.052	-.005	-.052	.42	.97	.27	2.43	3.17	-.32	161.8	2064.	-.54	47.
23	-.005	.001	.004	.46	.20	-.09	-1.41	-.01	-.45	197.7	2089.	-.93	34.
24	.026	-.011	-.051	.33	.77	1.33	15.91	1.84	1.07	198.9	2223.	2.14	41.

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Table 44- Continued

(b) Aircraft Motion-Variable Mean Deviations

Segment	λ_{n_x} (g)	λ_{n_y} (g)	λ_{n_z} (g)	λ_p (deg/sec)	λ_q (deg/sec)	λ_r (deg/sec)	λ_ϕ (deg)	λ_θ (deg)	λ_γ (deg)	λ_{v_i} (kt)	λ_h (m)	$\lambda_{\dot{h}}$ (m/sec)	Δt (sec)
1	.023	.005	.010	.51	.18	.07	.3°	1.74	3.34	146.9	2434.	5.11	33.
2	.040	.015	.034	1.42	.52	1.10	12.81	2.17	.60	205.4	2160.	1.21	39.
3	.091	.005	.067	.47	.45	.17	1.05	3.93	3.58	179.3	2272.	6.46	38.
4	.063	.014	.075	2.31	1.09	1.96	18.12	4.09	.30	165.7	2049.	.53	55.
5	.028	.022	.038	.50	.33	.08	.80	1.39	7.12	155.3	1656.	10.98	26.
6	.085	.007	.073	2.11	.79	1.34	13.31	3.39	2.84	169.7	1875.	4.94	33.
7	.081	.015	.086	1.95	1.12	1.94	18.84	3.99	.17	166.7	1964.	.28	33.
8	.068	.007	.037	.50	.28	.28	1.60	.96	1.55	198.6	1936.	2.99	36.
9	.065	.019	.156	2.29	1.91	2.15	20.75	3.32	1.04	165.5	1775.	1.73	43.
10	.042	.002	.016	.48	.24	.13	1.00	.54	.74	198.9	1879.	1.48	31.
11	.042	.016	.204	2.67	1.97	1.92	24.71	2.54	1.27	203.1	2090.	2.59	41.
12	.073	.009	.069	.48	.56	.11	.94	5.04	4.97	160.2	2622.	8.53	39.
13	.085	.019	.135	4.53	1.55	1.96	18.05	4.38	.70	158.4	2544.	1.17	39.
14	.154	.006	.062	.41	.45	.19	2.44	9.78	6.78	202.8	2186.	14.09	30.
15	.070	.018	.078	1.72	1.20	2.20	14.72	2.96	6.02	137.5	1510.	8.12	42.
16	.049	.007	.099	.49	.79	.25	1.80	4.17	3.93	185.0	1419.	7.24	34.
17	.083	.018	.081	1.96	1.19	1.94	17.63	5.13	1.21	162.9	1623.	1.92	37.
18	.098	.008	.116	2.40	1.31	1.64	15.99	3.47	3.36	173.5	1881.	5.68	34.
19	.070	.004	.011	.45	.21	.24	1.15	5.47	.50	144.1	1698.	.74	36.
20	.122	.018	.181	2.31	2.22	2.34	23.62	5.79	1.01	161.0	1722.	1.60	42.
21	.071	.006	.080	.51	.57	.36	3.48	4.66	4.66	176.9	2005.	8.61	33.
22	.052	.013	.067	2.67	.97	1.75	16.00	3.17	.36	161.8	2064.	.60	47.
23	.040	.004	.059	.47	.41	.09	1.41	1.35	1.39	197.7	2089.	2.81	34.
24	.026	.012	.061	1.61	.78	1.33	15.97	1.84	1.07	198.9	2223.	2.14	41.

Table 44- Continued

(c) Aircraft Motion-Variable Standard Deviations

Segment	σ_{n_x} (g)	σ_{n_y} (g)	σ_{n_z} (g)	σ_p (deg/sec)	σ_q (deg/sec)	σ_r (deg/sec)	σ_ϕ (deg)	σ_θ (deg)	σ_γ (deg)	σ_{v_i} (kt)	σ_h (m)	$\sigma_{\dot{h}}$ (m/sec)	Δt (sec)
1	.005	.004	.009	.29	.10	.07	.42	.05	.35	1.3	51.	.51	33.
2	.007	.011	.034	2.97	.34	.83	9.67	.17	.31	2.2	16.	.63	39.
3	.069	.006	.103	.43	.73	.21	1.55	3.95	3.67	24.2	48.	6.32	38.
4	.014	.021	.066	4.92	.67	2.26	21.06	.44	.21	1.4	10.	.36	55.
5	.033	.013	.068	.27	.37	.11	.33	.98	1.63	3.0	83.	2.46	26.
6	.085	.010	.085	4.24	.73	1.46	14.35	.63	.62	26.3	57.	1.59	33.
7	.010	.019	.081	4.27	.83	1.52	13.25	.48	.27	.8	6.	.45	33.
8	.033	.008	.057	.31	.43	.07	.63	1.49	1.56	12.0	25.	2.91	36.
9	.035	.022	.172	5.40	1.87	2.19	21.12	.98	1.05	1.7	27.	1.75	43.
10	.003	.003	.035	.49	.24	.11	1.14	.24	.23	1.4	11.	.46	31.
11	.019	.011	.205	5.46	1.73	1.67	21.92	.94	.72	1.9	27.	1.49	41.
12	.064	.007	.101	.16	.93	.10	.38	4.47	4.74	24.8	66.	7.94	39.
13	.029	.030	.169	8.12	1.54	2.63	23.14	.54	.55	1.0	11.	.91	39.
14	.036	.006	.118	.22	.68	.06	.20	1.36	.90	3.7	140.	1.89	30.
15	.028	.029	.085	3.67	1.19	2.19	13.49	.28	.48	3.7	102.	.64	42.
16	.046	.009	.159	.37	1.23	.08	.60	3.90	3.88	16.0	48.	7.04	34.
17	.019	.021	.083	4.55	.98	1.76	15.27	.64	.48	.5	17.	.77	37.
18	.058	.009	.142	4.85	1.38	1.63	17.20	3.96	3.97	20.4	29.	6.52	34.
19	.010	.004	.011	.12	.12	.04	.12	.07	.21	1.3	12.	.31	36.
20	.033	.019	.201	5.05	2.15	2.16	20.94	.81	.67	1.7	17.	1.08	42.
21	.072	.006	.125	.29	.86	.18	1.31	2.08	2.10	25.9	88.	4.15	33.
22	.011	.018	.068	4.97	.71	2.15	19.84	.29	.27	.9	7.	.44	47.
23	.045	.005	.090	.30	.51	.07	.77	1.58	1.53	2.2	20.	3.08	34.
24	.005	.008	.060	3.48	.57	1.05	12.58	.38	.23	.5	25.	.45	41.

Table 44- Continued

(d) Aircraft Motion-Variable Root-Mean-Square Values

Segment	ξ_{n_x} (g)	ξ_{n_y} (g)	ξ_{n_z} (g)	ξ_p (deg/sec)	ξ_q (deg/sec)	ξ_r (deg/sec)	ξ_ϕ (deg)	ξ_θ (deg)	ξ_γ (deg)	ξ_{v_i} (kt)	ξ_h (m)	$\xi_{\dot{h}}$ (m/sec)	Δt (sec)
1	.023	.009	.012	.59	.20	.09	.48	1.74	3.35	146.9	2435.	5.13	33.
2	.041	.018	.041	3.00	.62	1.37	16.05	2.18	.68	205.4	2160.	1.36	39.
3	.110	.006	.114	.54	.73	.21	1.56	4.06	3.76	180.9	2273.	6.67	38.
4	.065	.022	.089	4.94	1.27	2.31	21.62	4.11	.35	165.7	2049.	.61	55.
5	.033	.024	.075	.57	.50	.11	.87	1.43	7.31	155.3	1658.	11.25	26.
6	.025	.170	16.250	1.64	29.63	.13	1.64	2.68	.04	.1	4.	.52	33.
7	.082	.021	.101	4.27	1.36	2.39	23.03	4.02	.27	166.7	1964.	.46	33.
8	.076	.009	.067	.53	.43	.29	1.72	1.76	2.07	198.9	1937.	3.91	36.
9	.074	.026	.219	5.40	2.65	2.99	29.24	3.46	1.20	165.5	1775.	1.99	43.
10	.042	.003	.036	.63	.29	.14	1.15	.55	.78	198.9	1879.	1.55	31.
11	.046	.019	.282	5.48	2.61	2.54	33.03	2.70	1.44	203.1	2090.	2.95	41.
12	.082	.011	.115	.50	.93	.13	1.02	5.36	5.11	162.2	2622.	8.98	39.
13	.090	.030	.195	8.14	2.17	2.77	24.96	4.41	.81	158.4	2544.	1.35	39.
14	.158	.007	.118	.45	.79	.20	2.45	9.87	6.84	202.8	2191.	14.22	30.
15	.075	.029	.105	3.69	1.66	2.94	19.97	2.97	6.04	137.6	1514.	8.15	42.
16	.053	.009	.162	.55	1.24	.26	1.90	4.35	4.12	185.7	1420.	7.61	34.
17	.085	.025	.105	4.56	1.51	2.48	22.62	5.17	1.30	162.9	1624.	2.07	37.
18	.049	.435	19.050	3.92	39.22	.19	3.01	3.69	.02	.2	3.	.96	34.
19	.070	.005	.013	.47	.22	.24	1.16	5.47	.54	144.2	1698.	.79	36.
20	.127	.024	.256	5.05	3.08	3.15	31.55	5.85	1.13	161.0	1722.	1.80	42.
21	.086	.007	.125	.59	.88	.40	3.72	5.05	5.01	178.8	2007.	9.41	33.
22	.054	.019	.085	4.99	1.20	2.17	19.99	3.18	.42	161.8	2064.	.69	47.
23	.046	.005	.090	.55	.54	.12	1.61	1.58	1.60	197.7	2089.	3.22	34.
24	.027	.014	.079	3.50	.96	1.70	20.29	1.88	1.09	198.9	2223.	2.19	41.

Table 44- Continued

(e) Aircraft Motion-Variable Maximum Deviations

Segment	$\dagger_{n_x}$ (g)	$\dagger_{n_y}$ (g)	$\dagger_{n_z}$ (g)	$\dagger_p$ (deg/sec)	$\dagger_q$ (deg/sec)	$\dagger_r$ (deg/sec)	$\dagger_\phi$ (deg)	$\dagger_\theta$ (deg)	$\dagger_\gamma$ (deg)	$\dagger_{v_i}$ (kt)	$\dagger_h$ (m)	$\dagger_{\dot{h}}$ (m/sec)	$\Delta\dagger$ (sec)
1	.035	.017	.050	1.90	.66	.36	1.90	1.88	-3.76	149.1	2522.	-5.67	33.
2	.063	-.069	-.095	13.35	1.04	2.28	22.70	2.48	1.12	210.0	2195.	2.23	39.
3	-.170	-.025	.345	-1.35	-2.28	-.62	-4.70	-5.98	-5.98	212.1	2347.	-9.17	38.
4	.087	-.091	-.225	-18.05	2.68	4.54	29.20	4.56	-.80	168.9	2073.	-1.37	55.
5	.080	.036	-.255	1.50	1.88	-.32	-1.70	2.62	-8.60	162.0	1814.	-12.95	26.
6	-.153	.038	-.193	16.25	1.84	3.16	30.10	4.42	3.58	211.5	1966.	7.47	33.
7	.108	-.089	-.233	15.45	2.64	4.74	30.30	4.48	.76	168.9	1981.	1.25	33.
8	-.106	-.029	.248	-1.25	-2.10	.42	2.30	-4.22	-4.54	215.4	1981.	-8.44	36.
9	.127	-.114	-.440	-21.00	4.72	5.92	45.60	5.02	-2.64	169.8	1829.	-4.39	43.
10	-.049	-.011	.168	2.15	-1.02	.30	2.30	1.06	1.78	202.2	1905.	3.63	31.
11	.070	-.048	-.615	17.25	4.74	4.06	48.70	4.30	2.24	207.6	2126.	4.51	41.
12	-.132	.028	.353	.85	3.68	.32	1.70	7.00	6.36	199.2	2713.	13.14	39.
13	.134	-.088	-.540	-25.20	4.64	6.22	41.60	5.58	-2.02	160.5	2568.	-3.32	39.
14	-.195	.020	-.420	1.05	2.98	-.36	-3.30	-10.86	-7.70	206.7	2438.	-15.45	30.
15	.135	.122	-.265	14.60	4.94	8.12	32.60	3.74	-7.32	145.8	1684.	-9.88	42.
16	-.088	.029	.420	-2.10	-4.38	.56	3.00	-6.32	-5.86	209.7	1509.	-9.88	34.
17	.122	-.111	-.263	-18.15	3.32	5.48	32.10	5.84	1.72	164.4	1654.	2.77	37.
18	-.183	-.049	-.435	19.05	3.92	4.12	39.80	7.28	-7.36	198.9	1935.	-11.06	34.
19	.107	-.016	.043	.90	-.62	.36	1.50	5.64	-.80	147.3	1730.	-1.22	36.
20	.183	-.097	-.585	19.55	6.24	6.16	47.00	6.94	1.88	164.1	1753.	2.96	42.
21	-.146	-.020	.325	1.30	-3.34	.66	5.20	6.30	6.72	209.1	2141.	13.78	33.
22	.071	-.073	-.215	15.30	2.50	4.16	30.30	3.58	-1.02	163.5	2103.	-1.65	47.
23	.071	-.014	-.243	1.25	1.82	-.28	-3.00	-2.64	-2.72	201.3	2118.	-5.49	34.
24	.038	-.039	-.155	-13.20	1.56	2.56	28.40	2.30	1.38	200.1	2271.	2.77	41.

Table 44 -Concluded

(f) Passenger Response Data

Seat	1	2	3	4	5	6	7	8	9	10		
Subject	10	1	30	25	22	19	4	23	27	2		
Segment											Mean	Std. Dev.
1	1	2	2	1	1	2	2	2	2	2	1.70	0.48
2	3	3	2	3	2	4	2	2	5	3	2.90	0.99
3	3	5	3	4	5	5	5	4	5	3	4.20	0.92
4	4	5	2	2	4	5	3	3	5	4	3.70	1.16
5	4	5	3	2	2	2	2	3	5	4	3.20	1.23
6	4	5	2	2	3	4	4	4	5	4	3.70	1.06
7	3	4	2	2	3	5	3	4	4	4	3.40	0.97
8	3	4	3	3	2	5	2	3	5	4	3.40	1.07
9	5	6	3	5	6	6	3	5	5	4	4.80	1.14
10	4	5	3	2	5	3	3	4	3	5	3.70	1.06
11	4	7	5	6	6	7	4	5	5	5	5.40	1.07
12	5	5	4	5	5	6	5	5	5	4	4.90	0.57
13	5	6	5	6	5	7	5	4	5	5	5.30	0.82
14	4	5	5	5	5	3	4	5	5	5	4.60	0.70
15	3	5	4	3	4	5	4	5	5	5	4.30	0.82
16	5	6	5	4	5	7	5	5	5	4	5.10	0.88
17	3	4	2	2	4	5	4	4	4	4	3.60	0.97
18	5	4	4	3	6	3	5	5	5	5	4.50	0.97
19	3	2	2	1	1	2	3	2	2	2	2.00	0.67
20	5	4	5	5	6	5	5	5	5	5	5.00	0.47
21	5	5	4	2	5	5	4	5	5	5	4.50	0.97
22	3	4	2	2	2	4	4	4	3	3	3.10	0.88
23	3	4	2	2	3	5	4	4	5	3	3.50	1.08
24	3	3	2	2	2	4	3	4	4	3	3.00	0.82
Mean	3.75	4.50	3.17	3.08	3.83	4.54	3.67	4.00	4.46	3.96	3.90	
Std. Dev.	1.03	1.22	1.20	1.53	1.66	1.50	1.05	1.02	0.98	0.95		1.31

Table 45- Data From Maneuver Flight 7

(a) Aircraft Motion-Variable Mean Values

TIFS Flight 363

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Segment	μ_{n_x} (g)	μ_{n_y} (g)	μ_{n_z} (g)	μ_p (deg/sec)	μ_q (deg/sec)	μ_r (deg/sec)	μ_ϕ (deg)	μ_θ (deg)	μ_γ (deg)	μ_{V_i} (kt)	μ_h (m)	$\mu_{\dot{h}}$ (m/sec)	ΔT (sec)
1	.080	-.009	-.111	.54	1.54	-2.01	-19.79	4.00	-.47	166.1	2330.	-.81	43.
2	.010	-.015	.004	.43	.18	-.01	.51	2.23	.01	160.6	2275.	-.00	33.
3	.040	-.008	-.015	.45	.38	-.79	-6.69	3.08	-.32	169.2	2209.	-.57	42.
4	-.048	-.027	.018	.54	.20	.15	2.50	.02	-.82	193.6	2258.	-1.67	33.
5	.046	-.020	-.020	.45	.50	.35	4.15	2.98	-.99	168.8	2266.	-1.73	43.
6	-.021	-.018	-.109	.46	1.37	-1.67	-19.71	.21	-1.21	194.0	2306.	-2.31	41.
7	.051	-.015	-.097	.49	1.11	-1.67	-19.48	1.74	.35	203.0	2343.	1.70	45.
8	-.059	-.018	.026	.45	.09	.13	2.37	1.49	1.23	184.4	2452.	2.61	34.
9	.066	-.012	-.119	.60	1.65	-1.77	-18.06	3.09	-.21	164.4	2421.	-.38	39.
10	-.162	-.031	.069	.52	-.16	.02	2.05	-10.83	-6.19	193.0	2183.	-16.22	27.
11	.102	-.005	-.048	.62	1.11	-1.88	-15.20	5.48	-2.14	140.8	1848.	-3.00	43.
12	-.044	-.028	.022	.44	.10	-.19	-.49	-1.05	-2.25	195.6	1772.	-4.23	45.
13	.124	-.017	-.161	.52	2.25	-.78	-7.25	4.77	-.79	160.3	1654.	-1.26	64.
14	-.059	-.010	.017	.45	.06	-.27	-1.83	-2.41	-5.59	140.8	1447.	-7.69	40.
15	.119	-.006	-.158	.79	2.26	-2.65	-23.68	5.22	-.67	155.0	1179.	-1.01	47.
16	-.057	-.023	.032	.39	.07	.11	1.95	.47	-.22	189.6	1276.	-.07	33.
17	.063	-.009	-.064	.43	1.02	-1.31	-11.95	3.49	-.25	163.6	1185.	-.40	38.
18	-.015	-.015	.001	.73	.39	-.77	-7.94	-.23	-.48	190.1	1266.	-.77	52.
19	-.035	-.007	.016	.43	.14	.06	1.17	-1.77	-3.33	159.0	1168.	-5.21	23.
20	.094	-.010	-.080	.48	1.25	-1.73	-15.87	4.18	.38	161.8	1136.	.58	44.
21	-.093	-.019	.043	.35	-.02	0.00	1.21	.01	.83	174.2	1383.	1.99	32.
22	.075	-.009	-.137	.41	1.04	-.17	-.18	3.07	-1.09	166.7	1204.	-2.75	59.
23	-.112	-.023	-.008	.42	.30	.01	1.35	-6.37	-4.73	205.6	1049.	-9.46	20.
24	.062	.000	-.005	.40	.33	-.94	-6.45	4.55	-3.01	140.1	784.	-4.02	42.

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Table 45- Continued

(b) Aircraft Motion-Variable Mean Deviations

Segment	λ_{n_x} (g)	λ_{n_y} (g)	λ_{n_z} (g)	λ_p (deg/sec)	λ_q (deg/sec)	λ_r (deg/sec)	λ_ϕ (deg)	λ_θ (deg)	λ_γ (deg)	λ_{v_i} (kt)	λ_h (m)	$\lambda_{\dot{h}}$ (m/sec)	Δt (sec)
1	.080	.014	.126	2.07	1.58	2.10	19.83	4.00	.61	166.1	2330.	1.04	43.
2	.018	.015	.009	.43	.19	.04	.51	2.23	.07	160.6	2275.	.12	33.
3	.040	.009	.021	1.07	.39	.82	7.41	3.08	.32	169.2	2209.	.57	42.
4	.061	.031	.019	.54	.20	.16	2.50	.17	1.09	193.6	2258.	2.18	33.
5	.046	.021	.036	2.30	.50	1.11	10.63	2.98	.99	168.8	2266.	1.73	43.
6	.027	.018	.159	2.21	1.53	1.67	19.71	1.63	1.44	194.0	2306.	2.78	41.
7	.051	.016	.101	1.87	1.11	1.67	19.48	2.19	1.32	203.0	2343.	2.71	45.
8	.061	.018	.042	.45	.25	.13	2.37	1.68	1.95	184.4	2452.	3.83	34.
9	.066	.016	.131	2.56	1.69	2.06	20.16	3.09	.62	164.4	2421.	1.05	39.
10	.162	.031	.070	.52	.32	.06	2.05	10.83	8.19	193.0	2183.	16.22	27.
11	.102	.010	.066	1.67	1.12	1.97	15.20	5.48	2.14	140.8	1848.	3.00	43.
12	.051	.028	.058	.45	.41	.13	.50	1.37	2.29	195.6	1772.	4.31	45.
13	.124	.020	.179	2.96	2.26	2.63	25.01	4.77	.93	160.3	1654.	1.48	64.
14	.059	.011	.046	.45	.47	.27	1.83	4.05	5.59	140.8	1447.	7.69	40.
15	.119	.011	.165	2.32	2.26	2.67	23.83	5.22	.67	155.0	1179.	1.01	47.
16	.075	.023	.059	.39	.45	.11	1.95	2.23	2.29	189.6	1276.	4.16	33.
17	.063	.014	.080	2.26	1.04	1.64	14.34	3.49	.31	163.6	1185.	.49	38.
18	.059	.017	.055	1.05	.60	.88	9.48	1.26	1.70	190.1	1266.	3.16	52.
19	.035	.007	.017	.43	.20	.07	1.17	1.77	3.33	159.0	1168.	5.21	23.
20	.094	.011	.088	1.89	1.25	1.80	16.70	4.18	.38	161.8	1138.	.58	44.
21	.101	.019	.074	.35	.59	.04	1.21	3.30	3.34	174.2	1383.	5.64	32.
22	.075	.014	.147	2.86	1.84	2.29	22.99	3.07	1.69	166.7	1204.	2.75	59.
23	.112	.023	.033	.42	.36	.03	1.85	6.37	4.73	205.6	1049.	9.46	20.
24	.082	.005	.012	1.04	.38	1.09	7.30	4.55	3.01	140.1	784.	4.02	42.

Table 45 - Continued

(c) Aircraft Motion-Variable Standard Deviations

Segment	σ_{n_x} (g)	σ_{n_y} (g)	σ_{n_z} (g)	σ_p (deg/sec)	σ_q (deg/sec)	σ_r (deg/sec)	σ_ϕ (deg)	σ_θ (deg)	σ_γ (deg)	σ_{v_i} (kt)	σ_h (m)	$\sigma_{\dot{h}}$ (m/sec)	Δt (sec)
1	.024	.020	.127	4.53	1.35	1.80	16.57	.78	.78	.9	15.	1.33	43.
2	.007	.002	.015	.18	.11	.05	.18	.06	.10	1.5	5.	.16	33.
3	.005	.007	.021	1.77	.24	.73	6.96	.23	.18	1.0	11.	.31	42.
4	.050	.018	.034	.60	.24	.25	1.05	.30	.94	32.6	334.	1.84	33.
5	.009	.013	.045	3.99	.41	1.42	13.43	.20	.42	1.5	22.	.73	43.
6	.027	.009	.187	3.55	1.52	1.43	17.82	1.93	1.82	10.8	20.	3.47	41.
7	.023	.009	.108	3.07	.97	1.22	15.26	1.86	1.20	4.5	31.	2.48	45.
8	.049	.005	.055	.15	.38	.06	.26	1.19	1.75	17.2	30.	3.44	34.
9	.034	.018	.144	5.38	1.49	2.07	19.84	.95	.79	2.1	9.	1.33	39.
10	.064	.007	.069	.30	.45	.10	1.02	2.49	2.21	1.7	144.	4.38	27.
11	.019	.015	.068	2.96	.93	1.66	12.43	.26	.46	1.6	33.	.63	43.
12	.037	.006	.093	.24	.66	.15	.30	2.15	2.08	10.4	44.	3.73	45.
13	.038	.017	.177	4.89	1.93	3.13	30.10	.56	1.07	2.0	27.	1.70	64.
14	.034	.008	.063	.17	.67	.11	.53	3.66	2.50	3.7	105.	3.49	40.
15	.037	.014	.151	3.34	1.85	1.98	17.85	.60	.29	.9	17.	.43	47.
16	.061	.008	.105	.26	.75	.11	.38	2.35	2.92	14.3	26.	5.15	33.
17	.023	.021	.094	5.03	1.05	1.90	16.00	.56	.42	1.7	16.	.66	38.
18	.060	.016	.084	2.13	.69	1.02	11.22	1.90	2.25	27.2	225.	4.10	52.
19	.017	.004	.037	.22	.23	.08	.49	.08	.41	.6	44.	.64	23.
20	.015	.011	.092	3.41	1.15	1.72	15.90	.45	.20	1.7	28.	.33	44.
21	.062	.008	.128	.27	1.17	.06	.37	3.58	3.38	23.5	34.	5.45	32.
22	.025	.016	.141	4.75	1.55	2.90	28.59	.52	1.29	2.3	62.	2.12	59.
23	.014	.005	.067	.29	.44	.03	.30	.76	.44	1.1	57.	.91	20.
24	.009	.010	.015	1.76	.25	1.02	6.72	.10	.21	1.9	57.	.28	42.

Table 45- Continued

(d) Aircraft Motion-Variable Root-Mean-Square Values

Segment	ξ_{n_x} (g)	ξ_{n_y} (g)	ξ_{n_z} (g)	ξ_p (deg/sec)	ξ_q (deg/sec)	ξ_r (deg/sec)	ξ_ϕ (deg)	ξ_θ (deg)	ξ_γ (deg)	ξ_{v_i} (kt)	ξ_h (m)	$\xi_{\dot{h}}$ (m/sec)	Δt (sec)
1	.084	.021	.168	4.56	2.04	2.70	25.81	4.08	.91	166.1	2330.	1.56	43.
2	.019	.015	.015	.46	.21	.05	.54	2.23	.10	160.7	2275.	.16	33.
3	.041	.011	.026	1.82	.45	1.08	9.66	3.09	.37	169.2	2209.	.65	42.
4	.069	.032	.038	.80	.31	.29	2.71	.30	1.25	196.3	2282.	2.48	33.
5	.047	.023	.049	4.01	.65	1.46	14.05	2.98	1.08	168.8	2266.	1.88	43.
6	.035	.363	6.950	3.54	41.54	.33	3.26	3.36	.03	.2	3.	1.05	41.
7	.056	.017	.145	3.11	1.47	2.07	24.74	2.54	1.47	203.0	2343.	3.01	45.
8	.077	.019	.061	.47	.39	.14	2.39	1.91	2.14	185.2	2453.	4.32	34.
9	.074	.021	.187	5.42	2.22	2.72	26.83	3.24	.81	164.4	2421.	1.38	39.
10	.174	.032	.098	.60	.46	.10	2.29	11.12	8.48	193.0	2188.	16.80	27.
11	.104	.016	.083	3.03	1.45	2.51	19.64	5.48	2.18	140.8	1848.	3.06	43.
12	.058	.029	.095	.50	.67	.17	.58	2.39	3.06	195.8	1772.	5.64	45.
13	.130	.024	.239	4.92	2.96	3.22	30.96	4.81	1.33	160.4	1654.	2.11	64.
14	.068	.013	.065	.48	.68	.29	1.91	4.38	6.12	140.9	1451.	8.45	40.
15	.124	.015	.218	3.43	2.92	3.31	29.66	5.25	.73	155.0	1179.	1.09	47.
16	.083	.024	.110	.46	.76	.15	1.98	2.40	2.93	190.1	1276.	5.15	33.
17	.067	.023	.114	5.05	1.47	2.31	19.97	3.53	.49	163.6	1185.	.77	38.
18	.105	.263	6.150	2.08	22.52	.06	1.01	2.01	.04	.1	3.	.93	52.
19	.039	.008	.040	.48	.27	.10	1.27	1.77	3.36	159.0	1169.	5.25	23.
20	.095	.015	.122	3.45	1.70	2.44	22.46	4.20	.43	161.9	1139.	.67	44.
21	.112	.020	.136	.44	1.17	.06	1.27	3.58	3.48	175.7	1383.	5.80	32.
22	.079	.018	.197	4.77	2.41	2.90	28.59	3.11	2.13	166.8	1206.	3.47	59.
23	.113	.023	.068	.51	.57	.03	1.88	6.42	4.75	205.6	1051.	9.50	20.
24	.082	.010	.016	1.80	.46	1.38	9.31	4.55	3.02	140.1	786.	4.03	42.

Table 45- Continued

(e) Aircraft Motion-Variable Maximum Deviations

Segment	$\uparrow_{n_x}$ (g)	$\uparrow_{n_y}$ (g)	$\uparrow_{n_z}$ (g)	$\uparrow_p$ (deg/sec)	$\uparrow_q$ (deg/sec)	$\uparrow_r$ (deg/sec)	$\uparrow_\phi$ (deg)	$\uparrow_\theta$ (deg)	$\uparrow_\gamma$ (deg)	$\uparrow_{V_i}$ (kt)	$\uparrow_h$ (m)	$\uparrow_{\dot{h}}$ (m/sec)	Δt (sec)
1	.118	.099	-.423	-18.65	4.60	-6.30	-36.10	4.84	-2.12	169.2	2355.	-3.60	43.
2	.031	-.021	.103	1.05	-.74	-.16	.90	2.32	-.24	163.2	2286.	-.43	33.
3	.051	-.029	-.073	-6.25	.96	-2.02	-14.30	3.36	-.80	171.0	2240.	-1.37	42.
4	-.099	.106	.263	5.25	2.10	2.08	10.50	2.10	2.08	210.6	2355.	-3.41	33.
5	.071	-.049	-.155	12.10	1.70	-3.06	-24.80	3.32	-1.68	171.0	2309.	-2.93	43.
6	-.070	-.035	-.440	9.90	3.60	-3.66	-42.40	-4.02	-5.04	208.8	2332.	-9.60	41.
7	.085	-.032	-.335	9.30	2.92	-3.34	-37.30	4.08	2.38	213.6	2393.	4.79	45.
8	-.124	-.031	.228	.80	-1.70	.34	3.40	2.78	3.28	207.9	2499.	6.77	34.
9	.119	-.077	-.458	21.80	4.72	-5.48	-39.90	4.82	-1.82	169.2	2454.	-3.08	39.
10	-.212	-.050	.255	1.60	1.78	.26	3.60	-12.96	-10.22	197.4	2393.	-20.21	27.
11	.136	-.062	-.183	10.70	2.76	-4.26	-28.40	5.90	-3.08	144.0	1913.	-4.30	43.
12	-.082	-.049	.323	1.35	2.76	.82	-1.10	-7.32	-7.66	209.4	1836.	-13.90	45.
13	.190	-.061	-.543	14.75	5.54	-5.34	-44.90	5.66	-3.38	164.4	1692.	-5.36	64.
14	-.107	-.023	.158	1.00	-1.96	-.64	-2.70	-6.08	-8.68	145.8	1585.	-11.83	40.
15	.163	-.046	-.405	8.75	4.98	-5.04	-41.00	5.96	-1.24	156.9	1212.	-1.89	47.
16	-.122	-.035	.400	1.35	-2.88	.54	3.50	-4.86	-5.98	207.0	1303.	-10.03	33.
17	.114	.097	-.328	20.15	3.68	-5.98	-32.00	4.36	-1.34	166.5	1234.	-2.04	38.
18	-.098	.105	.385	10.95	-3.04	-2.14	-22.70	-4.80	-5.34	209.7	1364.	-9.57	52.
19	-.052	-.016	.185	.95	-1.18	.34	2.60	-2.14	-3.74	161.1	1242.	-5.88	23.
20	.129	-.043	-.268	12.05	3.08	-4.06	-33.60	4.82	1.18	166.5	1181.	2.04	44.
21	-.158	-.034	.485	1.35	-4.80	.22	1.90	-7.58	-5.92	209.4	1425.	-8.63	32.
22	.118	-.058	-.380	12.55	4.22	-4.54	41.90	3.88	-4.22	171.3	1295.	-6.92	59.
23	-.129	-.035	.285	1.35	1.82	.16	3.50	-7.42	-5.14	207.3	1173.	-10.30	20.
24	.117	.041	-.048	6.55	.96	-2.88	-13.80	4.70	-3.40	144.9	876.	-4.48	42.

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Table 45 -Concluded

(f) Passenger Response Data

Seat	1	2	3	4	5	6	7	8	9	10		
Subject	13	10	4	20	17	27	26	29	5	22		
Segment											Mean	Std. Dev.
1	4	3	3	4	5	5	2	2	2	3	3.30	1.16
2	2	2	2	1	1	2	2	1	1	1	1.50	0.53
3	2	2	2	1	5	2	2	1	2	1	2.00	1.15
4	1	2	3	2	2	3	2	2	2	2	2.10	0.57
5	3	3	2	3	3	3	2	2	2	2	2.50	0.53
6	6	5	2	4	7	5	4	3	2	5	4.30	1.64
7	3	4	2	3	3	3	2	2	3	4	2.90	0.74
8	5	3	2	2	5	5	2	2	3	3	3.20	1.32
9	5	3	3	3	6	5	5	2	4	5	4.10	1.29
10	4	5	4	3	7	6	5	4	2	5	4.50	1.43
11	5	4	3	2	3	5	3	2	3	3	3.30	1.06
12	5	4	3	2	5	5	3	2	3	5	3.70	1.25
13	5	5	3	5	4	5	5	2	3	4	4.10	1.10
14	4	4	4	4	2	5	3	2	3	2	3.30	1.06
15	5	5	2	3	3	4	4	3	3	3	3.50	0.97
16	6	4	4	3	6	5	5	2	4	5	4.40	1.26
17	3	4	2	3	5	4	3	4	2	5	3.50	1.08
18	6	5	4	2	3	5	5	3	3	4	4.00	1.25
19	2	4	2	1	2	2	2	2	2	1	2.00	0.82
20	3	5	4	2	3	2	3	3	2	2	2.90	0.99
21	7	4	4	4	7	5	5	3	4	4	4.70	1.34
22	3	5	3	5	6	5	3	2	2	3	3.70	1.42
23	5	4	2	2	3	3	4	2	3	3	3.10	0.99
24	2	3	2	1	3	5	4	2	2	1	2.50	1.27
Mean	4.00	3.83	2.79	2.71	4.13	4.13	3.33	2.29	2.58	3.17	3.30	
Std. Dev.	1.59	1.01	0.83	1.20	1.78	1.26	1.20	0.75	0.78	1.43		1.37

Table 46- Data From Maneuver Flight 8

TIFS Flight 363

(a) Aircraft Motion-Variable Mean Values

September 18, 1974

Segment	μ_{n_x} (g)	μ_{n_y} (g)	μ_{n_z} (g)	μ_p (deg/sec)	μ_q (deg/sec)	μ_r (deg/sec)	μ_ϕ (deg)	μ_θ (deg)	μ_γ (deg)	μ_{v_i} (kt)	μ_h (m)	$\mu_{\dot{h}}$ (m/sec)	Δt (sec)
1	.022	-.004	.002	.35	.16	.24	1.63	1.69	-3.33	146.1	2089.	-4.97	33.
2	.049	-.005	-.019	.36	.44	-.82	-16.20	2.12	.96	204.4	1837.	1.93	39.
3	-.069	-.003	.041	.47	-.03	.08	1.16	.83	1.04	176.1	2003.	2.49	38.
4	.044	.008	-.065	.36	1.10	-.44	-3.73	3.28	-1.15	165.3	1748.	-1.91	55.
5	-.017	.007	-.029	.30	.30	.17	1.11	-1.87	-8.09	155.2	1235.	-12.24	26.
6	-.073	.005	-.033	.49	.78	-1.06	-11.16	3.67	2.88	173.2	1321.	4.99	33.
7	.077	.005	-.065	.53	1.11	-1.77	-17.10	4.25	.23	186.8	1393.	.36	33.
8	-.060	.004	.032	.33	.05	-.05	-.14	-.75	-1.63	200.7	1347.	-3.07	36.
9	.040	.012	-.145	.52	1.93	-1.94	-19.44	2.64	-1.22	166.4	1087.	-1.99	43.
10	-.054	-.008	.007	.28	.14	.01	.15	-1.78	.33	207.2	1052.	.67	31.
11	.029	.005	-.238	.30	2.29	-1.98	-26.25	1.27	.50	210.1	1166.	.98	41.
12	-.067	-.003	.050	.36	-.05	.03	.75	2.26	1.52	186.2	1549.	3.56	39.
13	.059	.000	-.105	.32	1.60	1.08	11.34	2.98	-1.82	164.4	1277.	-2.96	39.
14	-.174	-.016	-.033	.42	.34	.28	4.00	-10.65	-7.24	214.2	841.	-14.82	30.
15	.126	.008	-.059	.53	1.21	-1.78	-13.09	5.56	-2.89	140.5	310.	-3.75	42.
16	.027	0.000	.030	.37	.15	-.02	.17	4.69	3.55	178.9	734.	6.34	34.
17	.058	.006	-.062	.59	1.07	-1.47	-13.73	3.94	.24	165.4	748.	.36	37.
18	-.091	-.001	-.046	.51	1.00	-1.35	-13.71	1.32	1.57	175.7	998.	3.45	34.
19	.104	-.006	.009	.44	.13	-.39	-2.74	6.27	.66	144.4	1050.	.93	36.
20	.119	.000	-.191	.79	2.55	-2.49	-24.49	4.66	.27	162.5	1102.	.41	42.
21	-.053	-.001	.007	.31	.15	-.01	.09	4.60	4.75	178.5	1366.	8.68	33.
22	.048	.006	-.052	.39	.97	-.67	.18	3.18	-.26	163.4	1420.	-.44	47.
23	-.031	-.003	-.021	.35	.29	.30	3.83	-1.37	-1.80	201.9	1349.	-3.66	34.
24	.010	.006	-.047	.49	.73	-1.12	-13.33	1.07	.67	204.7	1424.	1.32	41.

Table 46- Continued

(b) Aircraft Motion-Variable Mean Deviations

Segment	λ_{n_x} (g)	λ_{n_y} (g)	λ_{n_z} (g)	λ_p (deg/sec)	λ_q (deg/sec)	λ_r (deg/sec)	λ_ϕ (deg)	λ_θ (deg)	λ_γ (deg)	λ_{v_i} (kt)	λ_h (m)	$\lambda_{\dot{h}}$ (m/sec)	Δt (sec)
1	.022	.004	.006	.35	.17	.24	1.63	1.69	3.33	146.1	2089.	4.97	33.
2	.049	.005	.028	1.32	.44	.87	10.35	2.13	.96	204.4	1837.	1.93	39.
3	.083	.004	.054	.47	.43	.12	1.18	3.89	3.53	176.1	2003.	6.28	38.
4	.044	.013	.077	2.20	1.10	1.93	17.55	3.28	1.15	165.3	1748.	1.91	55.
5	.026	.008	.033	.31	.30	.17	1.11	1.98	8.09	155.2	1235.	12.24	26.
6	.086	.006	.069	2.09	.81	1.26	12.90	3.67	2.88	173.2	1321.	4.99	33.
7	.077	.009	.084	2.05	1.13	1.88	17.39	4.25	.37	166.8	1393.	.59	33.
8	.080	.006	.033	.33	.23	.05	.14	.84	1.76	200.7	1347.	3.36	36.
9	.050	.014	.159	2.38	1.96	2.08	20.07	2.64	1.22	168.4	1087.	1.99	43.
10	.054	.008	.014	.63	.23	.19	2.30	1.78	.33	207.2	1052.	.67	31.
11	.029	.007	.250	2.61	2.29	1.98	26.25	1.37	.83	210.1	1166.	1.67	41.
12	.080	.004	.062	.36	.52	.05	.75	4.81	4.95	166.2	1549.	8.28	39.
13	.059	.019	.137	4.24	1.62	1.97	17.91	2.98	1.82	164.4	1277.	2.96	39.
14	.174	.011	.063	.46	.42	.28	4.00	10.65	7.24	214.2	841.	14.82	30.
15	.126	.017	.082	1.99	1.26	2.00	13.14	5.56	3.26	140.5	310.	4.24	42.
16	.041	.004	.099	.39	.84	.06	.17	5.71	5.08	178.9	734.	8.85	34.
17	.058	.013	.080	2.10	1.11	1.82	16.23	3.94	.69	165.4	748.	1.09	37.
18	.091	.007	.109	2.55	1.23	1.41	14.43	3.80	4.02	175.7	998.	6.93	34.
19	.104	.006	.012	.44	.19	.39	2.74	6.27	.66	144.4	1050.	.93	36.
20	.119	.009	.207	2.75	2.57	2.48	24.57	4.66	.73	162.5	1102.	1.14	42.
21	.076	.004	.074	.33	.53	.08	.72	4.66	4.82	178.5	1366.	8.77	33.
22	.048	.011	.065	2.53	.97	1.70	15.27	3.18	.41	163.4	1426.	.67	47.
23	.038	.004	.030	.37	.29	.30	3.83	1.81	2.08	201.9	1349.	4.21	34.
24	.010	.007	.053	1.61	.73	1.15	14.10	1.07	.69	204.7	1424.	1.36	41.

Table 46- Continued

(c) Aircraft Motion-Variable Standard Deviations

Segment	σ_{n_x} (g)	σ_{n_y} (g)	σ_{n_z} (g)	σ_p (deg/sec)	σ_q (deg/sec)	σ_r (deg/sec)	σ_ϕ (deg)	σ_θ (deg)	σ_γ (deg)	σ_{v_i} (kt)	σ_h (m)	$\sigma_{\dot{h}}$ (m/sec)	Δt (sec)
1	.009	.004	.010	.18	.14	.07	.22	.09	.35	1.1	49.	.49	33.
2	.007	.008	.030	2.94	.31	.82	9.44	.18	.40	1.8	35.	.84	39.
3	.068	.005	.096	.44	.71	.20	1.74	3.92	3.50	23.7	52.	5.95	38.
4	.014	.020	.068	4.87	.70	2.26	21.00	.46	.53	1.3	34.	.86	55.
5	.023	.006	.066	.21	.38	.09	.30	.82	1.36	3.7	94.	1.99	26.
6	.078	.008	.079	4.20	.76	1.36	14.03	.63	.82	26.1	58.	1.93	33.
7	.019	.017	.078	4.21	.83	1.51	13.18	.50	.35	1.9	19.	.56	33.
8	.033	.007	.055	.21	.39	.06	.11	1.56	1.71	12.6	28.	3.12	36.
9	.045	.019	.180	5.35	1.94	2.18	20.91	1.01	.93	2.7	27.	1.51	43.
10	.008	.004	.033	.77	.22	.22	2.60	.32	.19	2.0	8.	.38	31.
11	.028	.010	.250	5.42	2.07	1.67	21.91	.92	.79	2.3	20.	1.61	41.
12	.060	.004	.102	.21	.92	.07	.34	4.47	4.84	27.6	62.	7.88	39.
13	.029	.031	.173	8.03	1.63	2.65	23.09	.52	.74	1.8	38.	1.18	39.
14	.052	.008	.123	.40	.69	.09	.32	1.12	.75	5.6	147.	1.56	30.
15	.043	.026	.083	3.56	1.10	2.07	13.38	1.49	1.75	4.1	51.	2.29	42.
16	.043	.006	.152	.27	1.25	.09	.18	4.12	4.22	10.2	72.	7.36	34.
17	.025	.019	.076	4.61	.88	1.76	15.23	.71	.72	1.4	13.	1.14	37.
18	.048	.009	.137	4.81	1.30	1.67	17.00	3.97	4.01	26.0	53.	6.73	34.
19	.007	.005	.015	.31	.11	.10	.31	.06	.22	1.1	8.	.32	36.
20	.044	.017	.230	5.01	2.49	2.17	20.86	.82	.77	1.7	15.	1.21	42.
21	.074	.006	.120	.25	.83	.12	.93	2.10	2.12	27.2	88.	4.15	33.
22	.013	.017	.064	4.90	.70	2.16	19.64	.30	.39	1.5	19.	.62	47.
23	.029	.004	.061	.25	.35	.08	.74	1.24	1.16	2.5	48.	2.30	34.
24	.007	.007	.053	3.43	.54	1.04	12.65	.39	.36	.7	18.	.74	41.

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Table 46- Continued

(d) Aircraft Motion-Variable Root-Mean-Square Values

Segment	ξ_{n_x} (g)	ξ_{n_y} (g)	ξ_{n_z} (g)	ξ_p (deg/sec)	ξ_q (deg/sec)	ξ_r (deg/sec)	ξ_ϕ (deg)	ξ_θ (deg)	ξ_γ (deg)	ξ_{V_i} (kt)	ξ_h (m)	$\xi_{\dot{h}}$ (m/sec)	Δt (sec)
1	.023	.006	.010	.40	.22	.24	1.64	1.69	3.35	146.1	2090.	5.00	33.
2	.049	.009	.035	2.96	.53	1.16	13.90	2.14	1.04	204.4	1837.	2.10	39.
3	.097	.006	.104	.64	.71	.21	2.10	4.01	3.65	177.7	2004.	6.45	38.
4	.046	.021	.094	4.88	1.31	2.30	21.33	3.31	1.27	165.3	1748.	2.09	55.
5	.028	.009	.072	.37	.48	.19	1.15	2.04	8.21	155.2	1239.	12.40	26.
6	.040	.168	15.350	1.66	28.33	.13	1.73	2.67	.03	.1	4.	.60	33.
7	.080	.018	.101	4.24	1.39	2.33	21.66	4.28	.42	166.8	1393.	.67	33.
8	.086	.008	.063	.39	.39	.08	.18	1.73	2.36	201.1	1348.	4.37	36.
9	.060	.022	.231	5.37	2.74	2.92	28.55	2.83	1.53	168.4	1088.	2.50	43.
10	.054	.009	.034	.82	.26	.22	2.61	1.81	.38	207.2	1052.	.77	31.
11	.040	.011	.345	5.43	3.09	2.59	34.19	1.57	.94	210.1	1166.	1.89	41.
12	.090	.005	.114	.41	.92	.07	.82	5.01	5.07	168.4	1551.	8.64	39.
13	.066	.031	.202	8.03	2.28	2.86	25.72	3.03	1.97	164.4	1278.	3.18	39.
14	.181	.013	.123	.57	.77	.29	4.01	10.71	7.28	214.3	854.	14.91	30.
15	.133	.027	.102	3.60	1.63	2.73	18.72	5.75	3.38	140.5	314.	4.39	42.
16	.050	.006	.155	.46	1.26	.09	.25	6.25	5.52	179.2	738.	9.72	34.
17	.063	.020	.098	4.64	1.39	2.30	20.51	4.00	.76	165.4	748.	1.20	37.
18	.035	.500	17.750	3.90	36.95	.17	2.74	3.53	.02	.1	4.	.65	34.
19	.104	.008	.017	.53	.21	.40	2.76	6.27	.70	144.4	1050.	.98	36.
20	.127	.017	.299	5.08	3.57	3.27	32.17	4.73	.82	162.5	1102.	1.28	42.
21	.091	.006	.120	.40	.84	.12	.94	5.06	5.20	180.5	1369.	9.62	33.
22	.050	.017	.083	4.91	1.19	2.16	19.64	3.19	.47	163.4	1426.	.76	47.
23	.042	.005	.064	.43	.46	.31	3.90	1.85	2.14	202.0	1350.	4.33	34.
24	.012	.009	.071	3.47	.91	1.53	18.38	1.14	.77	204.7	1424.	1.51	41.

Table 46- Continued

(e) Aircraft Motion-Variable Maximum Deviations

Segment	$\uparrow n_x$ (g)	$\uparrow n_y$ (g)	$\uparrow n_z$ (g)	$\uparrow p$ (deg/sec)	$\uparrow q$ (deg/sec)	$\uparrow r$ (deg/sec)	$\uparrow \phi$ (deg)	$\uparrow \theta$ (deg)	$\uparrow \gamma$ (deg)	$\uparrow v_i$ (kt)	$\uparrow h$ (m)	$\uparrow \dot{h}$ (m/sec)	Δt (sec)
1	.041	-.019	-.063	.85	.86	.38	1.90	1.98	-3.86	147.3	2195.	-5.67	33.
2	.060	.043	-.088	-12.50	.86	-2.08	-20.20	2.46	1.62	207.3	1905.	3.26	39.
3	-.157	-.018	.328	2.15	-2.28	.70	5.90	-5.98	-5.48	209.7	2096.	-8.14	38.
4	.070	.099	-.228	18.95	2.76	-4.68	-28.30	3.74	-2.42	168.3	1791.	-3.96	55.
5	.053	.024	-.268	.80	1.98	.38	1.90	-2.44	-9.50	163.8	1417.	-13.99	26.
6	-.173	.040	-.188	-15.35	1.98	-3.10	-28.90	4.70	3.90	214.2	1417.	7.41	33.
7	.106	.091	-.228	15.75	2.62	-4.86	-29.00	4.70	.86	170.4	1417.	1.31	33.
8	-.121	.027	.248	.95	-1.98	-.34	-.30	-4.22	-5.18	219.0	1402.	-9.51	36.
9	.106	.114	-.448	22.15	4.86	-5.98	-44.90	4.36	-3.42	173.7	1120.	-5.70	43.
10	-.070	-.018	.168	-2.50	-.98	.52	5.10	-2.14	1.02	209.7	1097.	2.04	31.
11	.073	.050	-.728	18.00	5.50	-4.18	-50.60	3.10	1.96	214.5	1227.	3.90	41.
12	-.133	-.019	.368	.95	3.74	.34	1.70	6.44	5.98	207.3	1654.	12.28	39.
13	.114	.099	-.508	25.65	4.38	-5.96	41.90	4.16	-3.26	166.5	1356.	-5.39	39.
14	-.242	-.035	-.543	1.75	3.26	.54	5.00	-11.70	-8.06	221.1	1113.	-15.94	30.
15	.413	.123	-.308	-13.75	4.50	-7.90	-31.20	9.50	-4.80	147.3	427.	-6.19	42.
16	.098	-.035	.408	1.65	-4.20	.38	1.00	8.06	7.40	197.4	815.	13.50	34.
17	.106	.091	-.248	18.95	2.94	-5.32	-29.10	4.86	-1.32	168.9	800.	-2.04	37.
18	-.166	.035	-.500	-17.75	3.90	-4.06	-37.10	-6.56	6.78	213.6	1097.	13.26	34.
19	.137	-.019	.068	1.75	.54	-.80	-3.50	6.46	1.18	147.0	1059.	1.74	36.
20	.189	.091	-.688	-18.15	7.10	-6.30	-48.30	5.82	1.60	166.5	1120.	2.50	42.
21	-.150	-.019	.305	.95	-3.26	-.48	1.90	6.30	6.78	211.8	1486.	13.75	33.
22	.078	.074	-.188	15.75	2.30	-4.04	28.20	3.58	-1.07	166.2	1471.	-1.55	47.
23	-.058	-.018	-.228	.95	1.80	.52	5.10	-2.14	-2.62	206.4	1425.	-5.43	34.
24	.024	.034	-.148	14.05	1.48	-2.30	-25.90	1.60	1.18	207.0	1478.	2.29	41.

Table 46 -Concluded

(f) Passenger Response Data

Seat	1	2	3	4	5	6	7	8	9	10		
Subject	26	29	5	22	17	27	13	10	4	20		
Segment											Mean	Std. Dev.
1	2	2	2	1	2	2	2	1	2	1	1.70	0.48
2	3	3	3	2	2	3	2	2	2	1	2.30	0.67
3	3	3	2	3	6	5	4	3	4	3	3.60	1.17
4	3	3	2	5	6	5	3	3	4	4	3.80	1.23
5	3	2	2	4	5	6	4	4	3	5	3.80	1.32
6	3	4	3	5	4	4	3	3	5	2	3.60	0.97
7	3	3	2	3	5	5	3	3	4	2	3.30	1.06
8	2	2	2	3	5	5	4	3	4	2	3.20	1.23
9	4	2	2	6	7	5	6	4	5	4	4.50	1.65
10	4	5	4	5	1	3	3	3	3	2	3.30	1.25
11	6	3	2	6	6	5	7	6	3	5	4.90	1.66
12	5	3	4	5	5	5	6	4	4	4	4.50	0.85
13	6	3	3	5	5	6	5	5	4	6	4.90	1.20
14	5	4	4	6	6	5	5	5	5	5	5.00	0.67
15	4	3	5	3	6	4	4	4	4	5	4.20	0.92
16	5	5	2	5	7	5	5	4	5	4	4.70	1.25
17	4	3	2	3	5	5	5	3	4	2	3.60	1.17
18	4	3	3	5	5	5	5	4	4	5	4.30	0.82
19	3	3	2	3	1	4	3	3	3	2	2.70	0.82
20	5	5	1	5	6	7	5	6	5	5	5.00	1.56
21	3	3	2	5	6	5	5	4	3	4	4.00	1.25
22	3	2	2	3	4	4	2	3	4	2	2.90	0.88
23	3	3	3	2	1	1	3	4	3	3	2.60	0.97
24	4	2	3	2	4	2	2	3	3	2	2.70	0.82
Mean	3.75	3.08	2.58	3.96	4.63	4.42	4.00	3.63	3.75	3.33	3.71	
Std. Dev.	1.11	0.93	0.93	1.46	1.88	1.38	1.41	1.13	0.90	1.49		1.40